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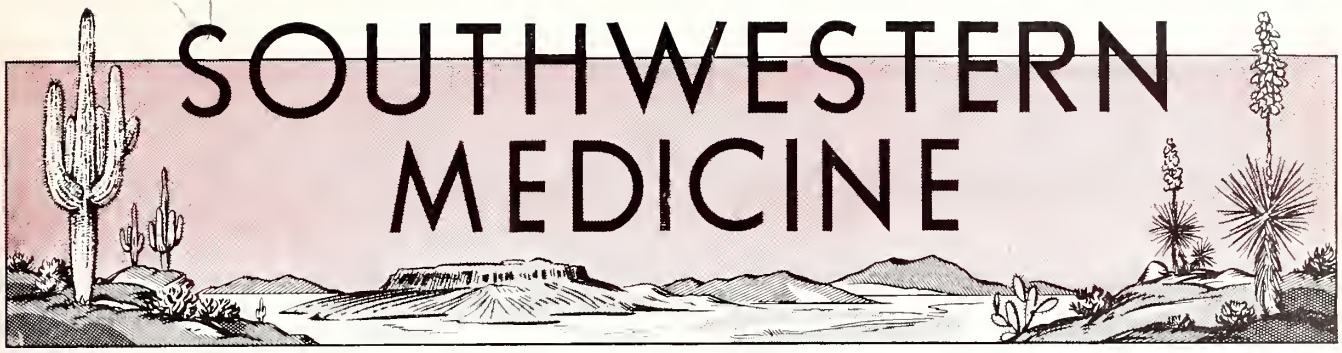

Volume XXVI EL PASO, TEXAS, JANUARY, 1942 Number 1

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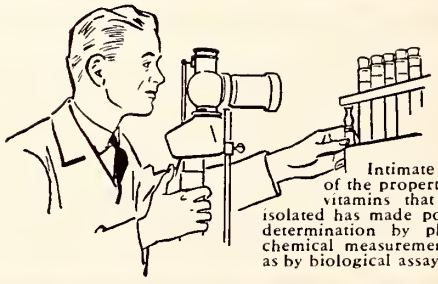

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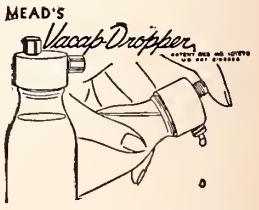

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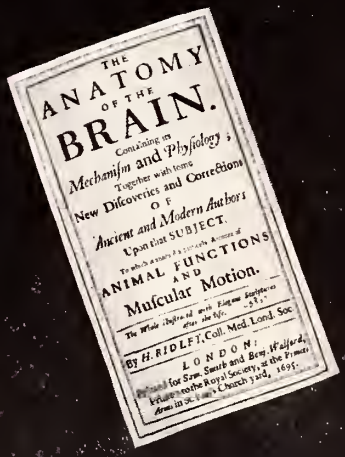

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1. Council Report: J.A.M.A., 113: 1734, 1939
2. Merritt, H. H. & Putnam, T. J.: A. J. Psychiat., 96: 1023, 1940

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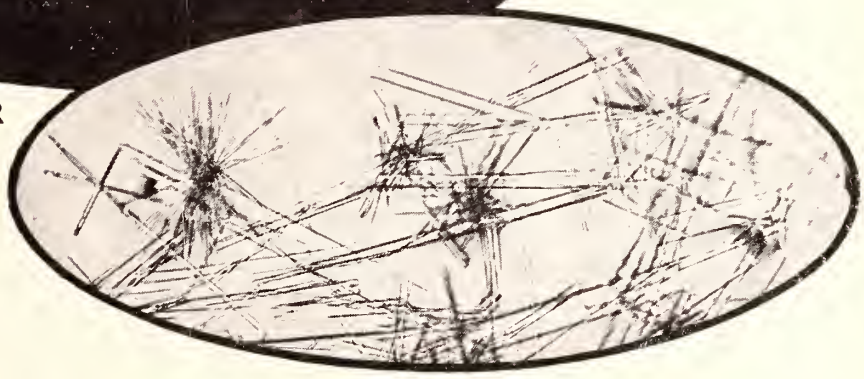

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SOUTHWESTERN MEDICINE

Vol. XXVI JANUARY, 1942 No. 1

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El Paso County (Texas) Medical Society

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AMERICANS FIRST

Not many months ago we in this country were in great argument over such things as the New Deal, socialized medicine, the statns quo, Toryism, the National Physician's Committee for Extension of Medical Care. Bitter words were passed, grand debates on planes from high to low were staged. "Old Tories" grew angry with "starry-eyed New Dealers." "Copper-heads assailed "revolutionists"—all because we differed greatly among ourselves as to the best methods of delivering medical eare to the people in general. A great din was raised, and the hullabaloo seemed without end. Well, that is changed now. For the duration, at least, we're pulling together as we've never done before. Again, we are Americans first—something else second.

Just a word of eaution seems apropos here—beware of the Carping Critic of your government now. With his wicked chatter hinting that the New Deal got us into war and that now we must beware of governmental efforts to muscle in on medicine, he is either purposely or ignorantly endeavoring to foment distrust, disloyalty, dismnity. Some of these persons may just possibly need a more thorough investigation than you and I are equipped to undertake. The FBI is trained in sueh procedures, it may be said.

It did happen in Norway, in France, in Holland, in Belgium, in Austria, in Czecho-Slovakia, in Jugoslavia.

IN THE 26th YEAR

Beginning with this, the first issue of SOUTHWESTERN MEDICINE for 1942, certain changes will be noticed in your publication.

The cover has been done over, in line with a journalistic trend toward more attractively dressing all periodicals, popular and scientific. Each month henceforth the very accurate scene of a Southwestern landscape will appear—cacti, Spanish daggers, arroyo, mesa and mountain—to greet in warm fashion our Southwesterners who can never get enough of our glorious land.

For make-up reasons and to aid in conserving paper, henceforth editorial comment will be placed in the front of the journal, rather than near the middle. There will be a bit less white space that just has to be filled—sometimes with material not really essential.

It is hoped to develop the department of Society Activities to somewhat greater usefulness, through the cooperation of the associate editors and the secretaries of the societies owning the journal. As time passes further improvements will be studied, and where practieable, adopted so that all Southwesterners may find increasing pride of ownership of their medical journal.

Thus, we begin our 26th year, hopeful for the future's fortunes, proud of the rather substantial role SOUTHWESTERN MEDICINE has played in the development of scientific medicine in the Southwest during the 25 years just past. And this is our promise—when better state medical journals are published, your own SOUTHWESTERN MEDICINE will be numbered among them.

KEYS OF THE KINGDOM

Ever so often, as the years of a man's life pass, there happens to him something that deeply cleanses him, that stirs all the decency in his soul. These things remain a part of a man for the balance of his life, a source of renewable faith in him.

This writer shall never forget the moment of the cry of his first-born, the breathless awe he

felt that dusk when he first glimpsed the purple heaps of the Southwestern Rocky Mountains. And now there is something else that cries to be aired. Several months ago there appeared a novel, "The Keys of the Kingdom," by Dr. A. J. Cronin[1]. This writer purchased the book, read it part way, suddenly realized that he held in his hands one of the most powerful expositions of the decency inherent in mankind that he would ever be likely to run across. Starting over again, the book was studied, rather than read. And ever since, we have not been able to forget this book—as we do most novels we read.

There is contained, in this work of Dr. Cronin's, a beautiful, sustaining philosophy that a great many of us mortals may find need of before the dark days now upon us give way to light and life again. Essentially, Dr. Cronin tells the tale of a simple Scottish priest, who comes very close to living on this earth just as did his Master—and the kindly man never seems to be aware of it. Justice, mercy, kindness, decency—these qualities so abhorrent to the Nazis and the pagan Japanese—these are indeed the keys offered the reader who follows Father Chisholm in the pages of this work. Most men can find profit, hope, and a great welling desire to make the world secure for decency through reading Dr. Cronin's book.

Herein no mere novel has been plugged—it is rather felt that all of us need more than ever to renew our faith in the things that helped make America great. You'll find "The Keys of the Kingdom" a glimpse into decency—that quality so in eclipse over the globe today.

1 Little, Brown and Co., Boston.

March of Medicine

WM. H. WOOLSTON, M. D.
Albuquerque, New Mexico

MEDICINE is one of the oldest professions. It is honorable, altruistic, scientific, liberal and democratic in respect to intelligence, race and nationality. There are no castes nor class distinction. The advances resulting from the combined and persistent efforts of its members have resulted in longer life, relief from pain, improvement in surgical technique. A great increase in our armamentarium in the battle against disease has developed a marked improvement in diagnostic methods. To mention some of the advances which have appeared in the present century—the X-ray as it is used for diagnosis and treatment, most recently the radiograms of the gall bladder and kidneys following contrast or intravenous dyes, encephalograms and radiograms of the spinal canal and deep therapy as used in the treatment of carcinoma. Salvarsan and its derivatives have cured the luetic. Radium is employed in conjunction with X-ray in cancer therapy. The average internist spends considerable time in research or is deeply interested in it. This has added much to medicine. A rational treatment of peptic ulcer is one contribution. You remember the older methods of the treatment of pneumonia—heavy jackets with camphorated oil, fresh air which was usually so cold that you couldn't take it if you were well, cupping, sweats and so forth. Compare this with the present intelligent treatment of pneumonia, using anti-pneumonia serums, sulfathiazole or sulfapyridine and oxygen. The electrocardiograph gives an accurate picture of the action of the auricles and ventricles and the heart muscle. Liver therapy in pernicious anemia and insulin in diabetes revolutionized the treatment of those two diseases. The peritoneoscope and the gastroscope are inventions for the inspection of the peritoneal and gastric cavities, respectively. Diphtheria antitoxin, the Schick test, Dick test, and the vaccines, antiserums and antitoxins used in the treatment of the infectious diseases mark further advances. The treatment of tuberculosis by medical and surgical means has advanced to such a degree that the chest specialists of the southwest have almost worked themselves out of a job.

SURGICAL PROGRESS

Brain surgery has progressed rapidly—first with improvement in diagnosis so that a tumor may be diagnosed early and localized accurately. Secondly, operative technique has improved to such an extent that tumors can now be removed successfully which formerly were considered inoperable. Years ago a cranial operation was

Presidential address before Southwestern Medical Association, El Paso, November 20-22, 1941.

much like an antemortem post mortem—nowadays a neurosurgeon goes into the cranium, picks out the 9th nerve, for instance, and severs it for glossopharyngeal pain, or a portion of the 8th nerve for Meniere's disease, or the sensory branch of the 5th nerve for trigeminal neuralgia. Neurological surgery probably is the most brilliant and spectacular branch of surgery. The Bovee cautery has added considerably to the brain surgeon's equipment: Sympathectomy has broadened its field of usefulness. In thoracic surgery repair of cardiac wounds, pericardiectomy for Pick's disease, pneumonectomy for tumor or bronchiectasis, collapse therapy for pulmonary tuberculosis by means of thoracoplasty, intra-pleural and extra pneumolysis, and phrenectomy have acquired their present importance comparatively recently. The bronchoscope has a broad field of usefulness. Abdominal surgery (particularly stomach, gall bladder, gastro-intestinal and kidney surgery) has advanced so that operations which were formerly rarities have become commonplace. Removal of large sections of colon or the rectum for carcinoma has added considerably to longevity. The Levin, Wangensteen and Miller-Abbott tubes have been life savers. Urology, with the development of the cystoscope, and more recently the resectoscope which has made a prostatectomy relatively safe, has improved wonderfully both from a diagnostic and a therapeutic standpoint. Gynecology and obstetrics with advances in technique and improvement in antisepsis have greatly lessened morbidity and mortality. Blood vessel surgery, to include the injection of sclerosing agents for varicosities, now occupies an important field. Chemical research is responsible for the most recent and probably the most valuable addition to therapeutics, namely the sulfonamides—whose usefulness has spread out to include most of the specialties in the medical profession. And now comes the preliminary reports of another substances spectacular in its results—gramicidin. Mastoditis, for example, which formerly often required emergency operations, responds to a large degree to treatment with sulfanilamide. Pneumonia responds to sulfapyridine, specific urethritis to sulfathiazole or sulfapyridine. The sulfonamides are useful in osteomyelitis, peritonitis, puerperal sepsis and numerons other conditions due to infections by the cocci. Hand surgery was put on a sound basis by the late Allen B. Kanavel by continuous investigation and meticulous attention to the anatomy and the pathology of the hand. The scientific treatment of hand infections resulting from his years of hard work has reduced the morbidity and mortality to a minimum. The badly crippled or claw hands as the result of tendon sheath infections are quite infrequent now. The last world war gave an impetus to the treatment of wounds and fractures. While our methods have altered somewhat since that time we might consider that period a land mark in the development of the treatment of wounds and fractures and plastic surgery. More recently the treatment of fresh wounds within the first five to six hours by thorough gentle lavage with soap and water and irrigation with saline solution, gentle debridgement, suture of injured tendons and nerves and primary closure has resulted in a wound which heals by primary union, whereas the older methods which lacked precision and initiative resulted in infected wounds, delayed healing and secondary operations.

CONTEMPORARY COMMENT

In the last few years we have become so vitamin conscious that when a detail man rears his head we know he has something to say of vitamins. However, they have their place and an important one, although that place is probably much over-emphasized at present. There is still much to be accomplished in this field.

Medical education with emphasis on technical training, standarization of teaching and practice, and the study of economic factors in medicine has coordinated the intangibles and has made medicine a developing science and a skillful, lasting art.

We get many back-handed compliments which are not always justified. The politicians, and occasionally an ambitious newspaper man, gleefully chooses us as a whipping boy. In April of this year a federal jury found the American Medical Association guilty of criminal conspiracy to restrain trade. A "conspiracy without conspirators," for the individuals were all acquitted. A "crime without criminals"—a completely senseless verdict. Medicine has been branded as a trade and not a profession by the same court. As suggested by one newspaper, if that is true we should form a union and thus be in absolute control of our members.

Our fundamental basic rights as to the practice of medicine; the control and education of

those engaged in its practice, their ethical standards, the conduct of conditions in hospitals where interne training is provided; all of these and many of the codes and principles which are essential to the safeguarding of the public health are threatened. The public must be made aware of its vital interest in the preservation of medical standards which have taken a century to build. Science must remain free and unhampered to progress. The government can help most effectively in the distribution of medical service to the indigent sick by providing adequate hospitalization. The burden should be lifted from the private hospital. A government which speaks and spends in billions should find this a simple expedient for the broadening and improvement of medical service. You need only be reminded of the scarcity and inadequacy of free hospital service for the indigent sick in the southwest to appreciate this condition. The government wants a finger or a hand in medicine (most laymen do).

MEDICINE'S PLEDGE

Through the efforts of one individual the world is in chaos again. With his armies this man has ridden rough-shod over the armies of most of the nations of the world. We are actually, if not openly at war. Our way is clear and the medical profession will perform its duty willingly as it always has, in cooperation with the armed forces of our government. The American way of life must be preserved and we are willing to sacrifice whatever is necessary to do our share. Further, if this society can aid in anyway we are ready for the asking. The twentieth century has been an interesting one in which to live. Epoch making, with two world wars so terrible that it is breath-taking to even think of them; and the poor people of earth, have just begun to suffer. As Thomas Paine once said, "these are times to try men's souls."

In closing, a toast:

We come into this world all naked and bare;
We pass through this world full of trouble and care.
We pass out of this world we know not where;
We have healed them here, we'll be welcome there.

First National Bank Bldg.

Treatment of Heart Disease in Childhood

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FROM the etiologic standpoint there are only two forms of chronic heart disease which are frequent in childhood. These are congenital heart disease and rheumatic heart disease. Congenital heart disease may be due in a few instances to infection occurring during intrauterine life, but in the great majority of cases, it is due to arrested or distorted development of the heart. Rheumatic heart disease occurs as a manifestation of rheumatic fever, and at least in temperate climate is by far the most frequent and important type of heart disease occurring in early life.

I do not wish to infer that the heart may not be affected, at least temporarily, by a variety of causes such as diphtheria, scarlet fever, pneumonia, and many other infections. Yet in such instances the insult is usually a temporary one, and if the patient survives, the heart usually returns to normal function, and later examination fails to reveal any cardiac abnormality. I shall, therefore, in discussing organic heart disease in childhood, limit myself to a discussion of congenital heart disease, and that resulting from the rheumatic infection.

Read before Southwestern Medical Association, El Paso, November 21, 1941.

FUNCTIONAL ABERRATIONS

Before considering organic heart disease, it may be well to give brief consideration to certain functional disturbances, which may, in the absence of demonstrable structural change in the heart, give rise to symptoms or signs suggesting cardiac mischief. There are several disturbances of rate and rhythm which fall into this category. The most frequent arrhythmia found in childhood is sinus arrhythmia. This is a quickening of the heart rate during inspiration and a slowing during expiration. This arrhythmia is more frequent and more marked in children than in adults. It is more evident

when the heart rate is slow than when it is rapid. Inasmuch as the heart rate is apt to be abnormally slow during the convalescent period following acute infections, it is at this time that sinus arrhythmia is often most noticeable. Such an arrhythmia may be alarming to the parent in case he happens to count the child's pulse, and may even cause concern to the physician unless he is familiar with the marked irregularity of the heart's action which may occur under such conditions. It cannot be too strongly emphasized that sinus arrhythmia is a perfectly normal phenomenon. Naturally no treatment is necessary, nor does the child need to lessen his physical activities.

Another frequent irregularity occurring in childhood is that due to premature beats. These beats arise prematurely in some portion of the heart muscle, most often in one or the other ventricle. After the premature beat, an abnormally long pause follows. Palpation at the wrist may reveal a feeble beat corresponding with the premature heart beat, or it may be imperceptible. The premature beats do not usually cause symptoms in children. Occasionally, however, a child may describe a "jumping" or "flopping" of the heart which is disagreeable. This irregularity may occur in children in the course of various acute infections, in organic heart disease, and in the apparently normal individual. The presence of premature beats should at least arouse suspicion of disease in the heart or elsewhere, and should lead to a careful physical checkup. When an underlying cause can be found, this should be corrected if possible. Premature beats are not important of themselves, and are rarely sufficiently annoying to require treatment. Sedatives may be helpful for the nervous child who is disturbed by frequent premature beats. Quinidine or digitalis prove successful in abolishing premature beats in a small percentage of cases.

Paroxysmal tachycardia is an infrequent but important disturbance of the heart rate in childhood. It is characterized by the sudden onset of a rapid, regular heart rate in the neighborhood of two hundred beats per minute, though in infants the rate may approach three hundred. After a duration varying from a few seconds to several hours or days, the tachycardia ceases as suddenly as it began. In this tachycardia the heart beat originates in some focus other than the sino-auricular node, most frequently in the auricle. When the duration of the tachycardia is brief, symptoms are few or absent. In longer bouts, the patient may be uncomfortable, complain of precordial distress, and exhibit symptoms and signs of heart failure. The attack usually subsides spontaneously. Efforts to terminate the attack meet with varying success. Pressure over the carotid sinus, pressure on the eyeballs, holding the breath, assuming some certain posture, or the induction of vomiting are effective in some instances. Some respond to the administration of quinidine or digitalis. Mecholyl has proved effective in a large percentage of cases, but the drug is not without danger. Both quinidine and digitalis have been employed with some success in preventing attacks.

It should be mentioned here that there is a form of paroxysmal tachycardia occurring in early infancy which appears to be a clinical recently entity, differing in certain respects from that which is seen in older children. Hubbard[1] recently reported nine cases, six of which were observed by him in a single year. I have recently seen two such cases. In these young infants, the tachycardia is extreme, usually between two hundred twenty-five and three hundred. The tachycardia is prone to persist for several days, leading to heart failure, and even to death if the condition is untreated. Fortunately the paroxysmal tachycardia of early infancy, contrary to that in the older individual, quite regularly responds to adequate doses of digitalis.

Another disturbance of cardiac function in which no cardiac pathology is found is the clinical picture variously described as effort syndrome, soldier's heart, or neurocirculatory asthenia. This condition was first described during our Civil War, and was thoroughly studied by Sir Thomas Lewis during World War I. It occurs most often in young adults, and in the strenuous and hazardous life of the soldier, yet it is found also in civilian life, and in older children as well as in adults. It is especially likely to occur at about the age of puberty. Palpitation, dizziness, shortness of breath, sweating, easy fatigability, and pain over the heart are frequent symptoms. Yet the physical examination fails to reveal any cardiac abnormality. Further study of these patients

almost always yields evidence of some degree of nervous instability. Fears and anxieties disturb them. They are convinced that they are ill, and because of the symptoms pointing towards the heart, they naturally assume that some disorder of the heart is present. Unless the physician is alert, he also may make the mistake of diagnosing heart disease where none exists, and so make a bad matter worse. It goes without saying that a careful examination, not only to rule out heart disease, but also to exclude hyperthyroidism, tuberculosis, or other chronic infection, is essential. Once the diagnosis of neurocirculatory asthenia is established, the management consists chiefly in building up the patient's confidence. He should be told that he has no organic disease. His exercise and other activities should be carefully graded so as not to induce undue fatigue. The physician should offer sympathetic encouragement and advice in solving the child's emotional problems. I am convinced that neurocirculatory asthenia is not infrequent in older children, and that it is often overlooked. Correct diagnosis is important, inasmuch as proper management is gratifying to physician and patient alike.

ORGANIC HEART DISEASE

Let us now consider organic heart disease. As I have previously stated, congenital heart disease is one of the two important forms of heart disease in childhood. In the great majority of instances, congenital heart disease results from arrested or distorted development of the heart during foetal life. A few instances are apparently due to fetal endocarditis or myocarditis. Inasmuch as practically nothing is known as to the cause of cardiac anomalies, little can be done in the matter of prevention.

Before taking up the medical management of congenital heart disease, it may be well to mention that at least one congenital cardiovascular condition has been operated upon successfully. Gross and Hubbard[2] reported the first successful ligation of a patent ductus arteriosus in 1939. Later reports by Gross[3], and by Bullock, Jones and Dolley[4] have shown that the operation is feasible, and is followed by marked improvement in properly selected cases. The operation should not be undertaken lightly. The diagnosis of patent ductus must be established, the presence of other lesions which would render unsafe the closing of the ductus must be ruled out, and these must be reasonable assurance that the patient's general condition will be improved. It seems scarcely necessary to remark that only the highly skilled surgeon who has given special study to the problems involved should undertake such an operation.

From the very nature of congenital heart disease, it is obvious that medical management cannot hope to affect a cure, but can serve merely to enable the patient to live as happy and useful a life as his handicap will permit. Some of the milder forms of heart disease, such as localized defect of the interventricular septum, open foramen ovale, or patent ductus arteriosus, may interfere very little with the patient's activities, and be compatible with a long and active existence. On the other hand the more severe cases in which constant cyanosis is present may be limited to an extremely sedentary life. Ordinarily the problem of restricting activity solves itself. Inasmuch as the cardiac condition has been present from birth, the patient has grown up with his handicap, and has learned how much he can do without discomfort.

Particular attention should be given to the avoidance of infection. Illness, such as pneumonia or whooping cough which place an extra burden on the heart, are more likely to result fatally than in the normal child. The most serious complication which endangers the patient with congenital heart disease is bacterial endocarditis. Abbott[5] has shown that about eighteen percent of all patients with congenital heart disease succumb to bacterial endocarditis arising at the site of the defect. This emphasizes again the importance of avoiding acute infectious diseases, for even if they do not prove serious in themselves, they may yet allow of the entrance of organisms into the blood stream which become implanted and multiply on the poorly resistant tissue at the site of the congenital lesion. It is also important to remove focci of infection when possible, though great caution should be observed in this matter. If tonsils or teeth are removed, one should make sure that the patient is in good health, and it is probably wise to administer sulfanilamide for a few days before and after operation.

In the general management of patients with congenital heart disease, drugs play a small part. Chronic congestive heart failure is seldom seen. When it does occur, digitalis is indicated.

A more common distressing occurrence in the severely cyanosed patient is acute suffocative attacks. Epinephrine may prove helpful. Although it is usually taught that oxygen is of relatively little value in congenital heart disease, it has been my experience that it almost invariably makes the patient more comfortable in the presence of distressing dyspnoea.

The treatment of rheumatic heart disease in childhood differs radically from that which obtains in the adult. Rheumatic heart disease usually has its beginnings in childhood and recurrences are more frequent and severe during this period. In adult life degenerative changes resulting from the earlier infection play a more prominent part.

In the child, three distinct problems must be considered: that of active rheumatic infection of the heart, that of congestive heart failure, and that of the quiescent intervals when no trace of active infection can be found.

The child who has active rheumatic fever involving the heart should be kept at complete rest in bed until signs of activity have subsided. If the patient is comfortable, it is doubtful whether any other therapy is indicated. The whole aim of treatment during this period is to give the heart the least possible amount of work to do. If the patient is restless or suffering from arthritic pain, acetylsalicylic acid or sodium salicylate should be given to make him comfortable. Likewise if there is considerable fever with accompanying tachycardia, the above drugs may lower the temperature and decrease the heart rate, thus enabling the heart to secure needed rest. The prolonged use of salicylates does not appear to hasten the disappearance of active infection.

Congestive heart failure in the rheumatic heart disease of childhood is always a serious problem. Clinical and post-mortem observations have established the fact that congestive failure in children does not result from valvular damage or injury to the heart muscle from a previous attack, but represents severe active infection, particularly of the myocardium. Recognition of this fact gives one a clearer idea of the proper method of management. In the child who has developed heart failure when up and about, the mere matter of putting him to bed and insisting upon complete bed rest may in itself be sufficient to enable the heart to carry on satisfactorily. When heart failure occurs with the patient at rest, active measures must be instituted. Of the diuretic drugs which have been employed for relieving cardiac failure, I have found theocalcin (theobromine calcium-salicylate) most satisfactory. It is usually effective in doses of about 45 grains (3 gm.) daily for a ten year old child, and may usually be continued as long as it proves beneficial. It seldom produces nausea or vomiting.

In the more stubborn cases resort must be had to mercurial diuretics. Salyrgan or mercupurin in the dosage of 1 cc. intravenously to a ten year old child usually produces a marked increase in the urinary output. This medication may be repeated every three or four days as indicated. Better results are often secured if about 45 grains (3 gm.) of ammonium chloride are administered daily for a day or two before the mercurial diuretic is given. It is not advisable to give salyrgan or mercupurin when the patient is on full doses of digitalis, inasmuch as the sudden taking up of edema fluid may release too much digitalis into the circulation with resultant digitalis poisoning.

The use of digitalis in the rheumatic heart failure of children has been much debated. Certainly it is less effective than it is in adults. In many instances it seems to be of no value, and in a few it appears to be definitely harmful unless the child is carefully watched and the dosage adjusted accordingly. Yet I have observed many children in whom a gratifying response has followed its use. It is my clinical impression that the more acute the heart failure, and the greater the rheumatic toxemia, the less likely is digitalis to be of value. In the patient with slowly developing signs of congestive heart failure, and with little or no fever, good results are not infrequent. The amount of digitalis necessary for full physiological effect varies a great deal in different children. The dosage first attempted should be determined by the weight of the child, and given proportionately to the adult dosage. It is often necessary to give more than the theoretical dosage as estimated by body weight before satisfactory results are obtained. Needless to say the child should be watched carefully for evidence of digitalis poisoning, and frequent electrocardiograms are helpful.

One further therapeutic measure which I have found to be of great value in cases which are resistant to the forms of therapy mentioned

above is that of making incisions on the dorsum of the feet. Amazing amounts of edema fluid can often be removed in this way. In one of our patients 15,000 cc. of edema fluid were drained off during a three weeks' period. Sometimes a mild localized infection occurs around the incision, but no serious complications have been observed. The chief difficulty is the nursing problem. The patient should of course have the feet dependent the greater part of the time, and this is much simplified if a cardiac bed is available.

The third problem in the management of the rheumatic child concerns the quiescent intervals in which the child is apparently free of active infection. It is too often the case that every child who has signs of organic heart disease is severely restricted in his activities by his parents or his physician in the belief that the less work the heart has to do the better off the patient will be. This attitude is to be deplored. There is no reason why the child who is feeling well, and who is found after careful physical examination and laboratory tests to be free from active rheumatic fever, should not indulge in physical activities which leave him short of fatigue. In most instances it is well to omit competitive games, for under the stimulus of competition, the child is likely to overdo. It has always been my contention that we make two mistakes in managing the child with rheumatic fever. We do not keep him in bed long enough or completely enough during the stage of active infection, and we restrict him too much once the stage of active infection has passed. It may be well to inquire at this point how one may determine that the active infection has subsided. The answer is not easy. Naturally one must make sure that the temperature is normal, that the heart rate has returned to normal limits, that anemia has improved, and that the white count is not elevated. Above all these a good appetite, a general appearance of well-being, and a gain in weight are important. In doubtful cases the sedimentation rate is perhaps the most accurate gauge that we possess.

In conclusion a word should be said concerning the emotional reactions of the cardiac child. Heart murmurs are interesting. Physicians are prone to discuss them in the presence of the patient. This is especially true in the case of the child who attends a cardiac clinic. Even the prognosis is apt to be mentioned in language that the child can understand. The outlook should be portrayed in as hopeful a manner as possible, and the patient taught to adopt a wholesome attitude towards his handicap to the end that even with some physical limitations his life will be happy and useful.

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Hypothyroidism

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THYROID disturbances have been noted from the time of Pliny in the early Christian era. The Romans measured the increase in the size of the necks of young women for defloration or pregnancy. Ground sponge and sea weed were used in 1180 by Roger of Palermo. In the 16th century, Paracelsus noted goiter in Salzberg. Haller in 1776 was the first to discover the thyroid as a ductless gland. Fogge of England in 1871 described sporadic cretinism, with "wasting of the thyroid body" as the probable cause. Gull in 1873 described five cases of a "cretinoid state supervening in adult life in woman." He expressed the hope that clinical knowledge would improve when the medical profession's attention would be called to these cases. It was not until 1891 that Thieberg described mild hypothyroidism as a "Forme Fruste" of myxedema. In

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1899 Hertoghe described chronic hypothyroidism in detail. In 1906 L. Leve and Rothchilds dealt with the subject in man in detail. Many of the works classify hypothyroidism only as myxedema, many other writers, including Watkins (Annals of Internal Medicine, 7-1534, 1934) and Seward (Annals of Internal Medicine, 9-178, 1935), have described this condition as a syndrome. Of the milder cases, not until later was anything known of thyroid deficiency—hypothyroidism. It is obvious by searching the literature, that we are finding more hypothyroidism than formerly, possibly because there are more metabolism machines in use. I am convinced that with a good history and metabolic rates, constantly low, (even minus five) and with an increase in the blood cholesterol, that many patients will improve on thyroid medication. The symptomology is not a true syndrome, there are many varied signs and symptoms.

CLASSIFICATION

In classifying hypothyroidism, Engelbach classifies it as follows: Infantile hypothyroidism, juvenile, pre-adolescent and adult hypothyroidism.

Infantile hypothyroidism is congenital. In this type, it is always inherent from a hypothyroid mother. The diagnosis is made in the infant only by complete history with that of the mother and even the father, especially the mother, as to the gain of weight, tiredness, dryness of skin and hair with an enlarged thryoid while in gravidity; then the birth weight of the child; then X-ray of the elbow and ankle to see if there are developed nuclei of the calcaneus and talies in the ankle and the centers of ossification of distal epiphysis of the femur and proximal epiphysis of the tibia which should be done not later than one week after delivery. These infants are usually good babies, they are usually overweight, 9 pounds or more, and lie quietly in their cribs, the hair and skin is usually dry, they are very inactive, catch colds easily, have large tonsils, and show hypertrophy of all lymphoid tissue. There is delayed walking, talking, delayed closure of the anterior and posterior fontanels, some have internal strabismus and many have umbilical hernias. One would suspect hypothyroidism when the cord does not separate in ten to fourteen days and there is failure of the umbilicus to heal. Enuresis later on is another symptom as is uncontrollable constipation. These children, from two to four years, usually begin to lose weight and become very lean, they do not eat well, pick at their food, are not congenial with other children, do not play well, tire easily, have night terrors, run a sub-normal temperature, usually do not stand cold well and are easily chilled.

The juvenile hypothyroid is one that is a quiescent hypothyroid which may be contravened when an acute childhood disease, infection, or intoxication attack them and the hypothyroidism is precipitated. Symptoms of the juvenile or pre-adolescent hypothyroidism are: Poor concentration, maybe overweight or underweight unless they are complicated with other endocrine disturbances such as Froelich's syndrome. They have the classical dry skin, hair, suffer from thermal changes and may have nodular goiters.

The adolescent hypothyroid, not unlike the juvenile, is usually inherent. The girls especially have an enlarged symmetrical thyroid, their development is not usually interfered with. If the basal metabolic rate in the juveniles, adolescent and adult is minus thirty or below that differentiates it from myxedema. The boys may have undescended testicles. I have seen many adolescent hypothyroids relieved of their cryptorchidism with thyroid alone. Iodine given the hypothyroids does not have much effect. It is well to give iodine to the gravid mother. However, other endocrine glands may be engrafted on the hypothyroid and the picture may change. The adolescent girl may have various different menstrual disturbances, dysmenorrhea and amenorrhea being the most frequent types. The menstrual phase may be prolonged and profuse. X-ray of the carpal joints show retardation of development. The teeth may show crowding from late exfoliation of the deciduous teeth causing misalignment of the incisors. The nails are usually brittle and the girls complain of being unable to grow long nails. Their grades in school are usually not good, concentration is poor. They are easily fatigued, usually irritable, fussy and cry easily. In taking a basal metabolism it is our custom to do a blood cholesterol which is usually high, above 200 mg. per 100 cc. of blood. The white blood count may show a relative lymphocytosis and increase in monocytes. Many have secondary anemia, this applies to juveniles, adolescent and adults as well. Other symptoms are occasional low grade

temperature, but they usually run a subnormal temperature with a slow pulse frequently in the sixties. They have hypertrophy of the tonsils, adenoids and lymphoid tissue. They are prone to contract colds and sinusitis. If the disease is of long standing, dating back to infancy, the sinuses (especially the frontals) are poorly formed. Calcium, phosphorus and carbohydrate metabolism may be disturbed.

EFFECTS OF HYPOTHYROIDISM

The adult hypothyroid symptomatology is not constant. The one symptom that stands out is fatigue following physical or mental effort. The pulse is usually slow. Some symptoms are: nervousness, irritability, sleeplessness, abdominal distress such as gas, bloating and constipation, mucus in stools, tenesmus, dryness of skin especially of the elbows, knees, ankles and scalp, hair is dry and may break easily, hairline high on forehead, eye brows thin, poor concentration, joint pain at times, variable appetites. Many of the adults show tooth decay, root resorption. Some dentists claim osteoporosis is caused by hypothyroidism. Mild hypothyroidism may cause sterility in both male and female. The first thing one should suspect in a childless family, where there is a desire for a family, is hypothyroidism.

Presence of a goiter is additional reason to make the diagnostic error which is most unavoidable, if the configuration of the orbit suggest exopthalmous or stare. Yet these patients reveal a low basal metabolic rate which often falls away below prediction. Their thyroid state is indicated to the physician by dryness of hair and skin, and complaints of constipation. Hypothyroidism is one of the most common causes of hypoglycemia, as deficient activity of the thyroid is quite often associated with disturbed liver function and decreased storage of glycogen in the liver may account for low blood sugar. Hypothyroidism, however, also infers a decreased state of sympathetic tonus, which is another essential factor in depression of blood sugar level. One should always ascertain the function of thyroid in hypoglycemia, before we direct our thoughts to other endocrinopathies.

In fat metabolism, we find that hypercholesterinemia occurse in hypothyroid and the opposite hypocholesterinemia occurs in hyperthyroidism. The former is indicated when thyroid medication is given to the hypothyroid and the cholesterol in the blood is decreased. This justifies the conclusion that thyroid insufficiency is actually at fault in this disturbance of lipoid metabolism.

In protein disturbances, thyroid deficiency is reflected by changes in relative proportions of the blood proteins. The physiological ration of albumen, globulin and fibrinogen is influenced by Vitamin C and many other factors, many of which have no demonstrated relation to the endocrine system. But even if such factors prevail endocrine therapy still acts favorably and helps to institute a return to normalcy. Lipoid nephrosis with the decreased albumen and increased globulin in the blood is a striking example. Sufficient massive doses of thyroid are likely to bring about an increase in the former and decrease in the latter, and a return to normal physiological balance. The low basal metabolic rate and high blood cholesterol which characterize nephrosis are indicative of hypothyroidism. The blood proteins are increased in hypothyroidism and myxedemas and decreased in nephrosis. Among the changes in blood proteins in hypothyroidism the relative increase of fibrinogen deserves attention. Further studies are desirable to show whether this excess of fibrinogen accounts for susceptibility of hypothyroid patients to thrombosis which would help explain the surprisingly high incidence of pulmonary embolism in hypothyroid patients.

In disturbance of salt and water metabolism, the thyroid is one of the important factors. The thyroid hormone decreases the water affinity of tissue and liberates the water, thereby causing diuresis and an increase of output of salt. Thyroid increases the output in normal persons, but the water and salt loss are tremendous in hypothyroidism, especially in myxedema. Water retention and oliguria is just as typical of hypothyroid disease as is the moist perspiring of hyperthyroid cases. It is quite characteristic for the hypothyroid person to put on weight suddenly and to lose it just as quickly. Temporary increases in water and oliguria accounts for the former, accentuated diuresis for the latter.

In iron metabolism we find the most common form of anemia met with in hypothyroidism is characterized by an increase in hemoglobin content of the individual red cell, color index above one; classified as hyperchomic and comparable to the essential anemia of pernicious type. How-

ever, the red cells are large and stain well and the absence of megalocytes and nucleated red differentiates between hypothyroidism and pernicious anemia.

Disturbances of heat regulation and abnormally low body temperatures are the results of general depression of metabolism. The hypothyroid state is one of hypothermia. Temperature slightly but consistently below normal are characteristicc of thyroid deficiency. Extreme hypothermia prevails in hibernating animals whose thyroid function is at the lowest possible level. Administration of thyroxin promptly increases the body temperature while simultaneously the animal ceases to hibernate. The study of the thyroid deficiencies which outnumber the hyperactive will prove to be interesting, profitable and will be happily received by your patients.

You will find hypothyroidism in all walks of life, ages and sexes. If the treatment is cautious, beginning with small doses of thyroid, carefully watching the results with basal metalobic readings, temperature, pulse, thermal and weight changes, one will soon find many so called neurotic men and women returned to normal status. The small child will respond just as well, begin to grow, eat and get into development, standing his ground in school work.

The nodular non-toxic goiter responds nicely to surgery, the basal metabolic rate being lowered and returned to normal, with improvement in every respect. One should build the hypothyroid up with iron, vitamins and good nourishing food, just as is done in any other illness. All foci of infection should be carefully attended to and eliminated. Hypothyroidism is so prevalent, and so engrafted on by other endocrine aberrations that one cannot make a mistake by giving small doses of thyroid to all cases of endocrine gland disturbances other than toxic nodular goiters, toxic hyperplastic or exopthalmic goiters. In short, the physician will find that thyroid deficiency will respond to proper treatment and medication.

Sterilization of the Unfit

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El Paso, Texas

TO MIX one's germ plasm with that another person is to indulge in a game of chance, compared to which the faro table is a somber and staid investment.

In the shuffle of the genes, which takes place in procreation, all of the spades may be given to one daughter or son, and nothing over a six spot to her or his brother or sister.

All sterilization decrees, edicts, laws, regulations and rules, around the world, have been aimed at those with mental impairment.

The proportion of individuals who, because of hereditary conditions over which they have no control, are unable through their own efforts to provide for themselves and their offspring, is conservatively estimated at three per cent in any population, and sometimes more. Such proportions reflect the continued inbreeding of persons afflicted with hereditary disease, these figures being often accentuated by local conditions.

It will be noted that in all states which have sterilization laws, the feeble minded are subject to sterilization.

Alcoholism in the ancestry, instability of the nerve structure showing itself in emotions as in hysteria, St. Vitus dance, and even retarded action of the nervous system, exhibiting itself in dullness all, and much more, enter into the protean complex which we recognize as heredity.

The study of the causes of insanity, especially the hereditary beginning of the disease, becomes therefor most vital to us, if we propose to diminish its prevalence in the community and state. The fact remains, however, in many instances, the stock is either so very poor, or the environment so hopeless, that one feels it best to cut short through sterilization. Anything is better than a slow, long drawn out living death.

PROTECTION OF STERILIZATION

Sterilization is not punishment, but protection alike to the afflicted, their families, to society, and to posterity.

Nearly all candidates for the procedure come from the ranks of unskilled labor and even be-

Read before El Paso County Medical Society Nov. 24, 1941.

low, from the ranks of the vagrants, dependents, alcoholics and unemployables. Their multiplication furnishes a fertile soil for the production of dependents, delinquents, alcoholic, and criminals through the lack of foresight, self control and judgment, along with ignorance and indifference and some times alcoholism, mentally defective persons do not limit their families, as do the more intelligent classes.

How about the family with from six to sixteen children, with nine dollars per week income, and sometimes no work, often living in two rooms, with marked lack of proper nutrition, living in deplorable sanitary conditions and questionable environment, with a mortality of about 50% among the children by or before they are six years of age? Is it any wonder that mental impairment or tuberculosis comes in to close the scene? The insane may be sterilized in all except two states, the epileptics in about two-thirds of the states, the habitual criminals in one-third, and the moral degenerates and sexual perverts in about one-fourth. The enumeration of the last two groups, moral degenerates and sexual perverts, is confined almost entirely to laws enacted by states in the middle and far west. The 1935 Oklahoma statute is the only one which is aimed exclusively at the sterilization of habitual criminals. That the criminal is a persona non grata in Oklahoma, is proven by the statute. Birth control is the accepted method of eradication of mental impairment.

Sterilization is a recent addition to the armamentation of preventive medicine, and bids fair to run a close second as a control measure to those used in diphtheria or typhoid fever. Sterilization laws were passed to raise the average standard of intelligence of the people. It is better, for all the world, if instead of waiting to execute degenerate offspring for its crime, or let them starve for their imbecility, society would prevent those who are manifestly unfit from continuing their kind.

The problem of the hereditary transmission of disease is a formidable one, which offers large scope for medical science and research. In some countries the issuance of marriage license to epileptics, deaf mutes and adult feeble minded, with a mental age of nine years or less, is made conditional upon their previous sterilization. There are childless homes around the world, the result of a voluntary attempt to control mental impairment. Many of these couples seek to adopt a child of known mental condition, not because of a lack of fertility of the adopters, but because of mental impairment in their ancestry. Such action is highly complimentary and satisfactory, and if every one would do as much legislative interference would not be sought in this problem.

When the Virginia sterilization law was sustained in the district court, and every other court, including the United States Supreme Court, Justice Oliver Wendell Holmes, made this statement, "Is not three generations of idiots, by one name, in one locality, enough?"

Dementia praecox fills many beds in the United States. The lower strata of society, such as beggars, vagrants, prostitutes and criminals, all too often suffer from a mild form of dementia praecox. It may be hereditary. More than fifty per cent of the men, and one-third of the women sterilized in California State hospitals were said to be suffering from this disease. Maniac depressive insanity may also be hereditary. Many thousands of married women, many of whom had some college training, having one or more children, with poor health, for many reasons, have been sterilized in many places, and many years added to their expectancy of life as a result.

By the definition of the intelligence quotient there are between 5,000,000 and 6,000,000 feeble minded people in the United States. The cost to the community of these millions of defectives must be recorded not only in dollars and cents, but still more in lowered standards of education, citizenship, industrial efficiency, and in human misery, suffering and death.

Sterilization and parole, enacted into law in California in 1913, has helped the officials to reduct the taxes $2,000,000.

There is probably little overlapping between groups of mentally diseased and mentally deficient, together they make up nearly 15% of the population.

WHY STERILIZATION?

(1) The birthrate among families living on public charity is often fifty per cent higher than births among self-supporting families.

(2) The burden of taxation due to the cost of supporting the mentally diseased and mentally defective is at the same time steadily mounting.

(3) The families that contribute children to the state homes for the feeble minded in California, are multiplying about twice as rapidly as the rest of the population.

(4) Few of the feeble minded are given institutional care, but their presence in the population at large is none the less expensive, both directly, and in lowered efficiency of industry, in crime and delinquency, and in the deterioration of citizenship.

(5) Psychologists estimate that at least 1,000,000 persons in the United States are so feeble minded as to need special care and supervision. If any one with less than 70% of average intelligence for their age is called mentally deficient, the number of such persons in the United States, is said to be about 6,500,000.

(6) The number of insane persons in hospitals is growing from year to year. Only 435,000 are cared for at any one time; the turnover is rapid: 95,000 admissions are reported each year.

(7) Sex offenses are less frequent, in that sterilization has been followed by a marked decline in sex offenses. This is not because the operation changes the sexual urge, for it produces no such change. It is probably because of better health, discipline, education, and more careful placement and supervision on parole. The record disposes of the charge that sterilization will result in increased promiscuity, and spread of social disease. Of 304 feeble minded girls sterilized and paroled, nine out every twelve had been sex offenders before commitment, and after sterilization only one out of every twelve became sexual delinquents.

SUMMARY

Sterilization has added years to millions of women's lives.

Sterilization has reduced the failures in the public schools. It has sent a greater per cent of the grammar school students to high school, than ever before.

It has raised the living standards among millions of families. It has raised the standard of citizenship for the city, the state and the nation.

The following states have passed sterilization laws, and show certain operative figures:

State	Male	Female	Total
Alabama	129	95	224
Arizona	10	10	20
California	5,933	5,551	11,484
Connecticut	23	372	395
Delaware	263	231	494
Idaho	4	10	14
Indiana	321	228	549
Iowa	61	46	107
Kansas	1,039	711	1,750
Maine	14	115	129
Michigan	381	1,315	1,696
Minnesota	224	1,050	1,274
Mississippi	99	223	322
Montana	34	62	96
Nebraska	123	189	312
New Hampshire	45	281	326
New York	1	42	43
North Carolina	65	325	390
North Dakota	84	250	334
Oklahoma	42	113	155
Oregon	378	727	1,105
South Carolina	0	0	0
South Dakota	110	194	304
Utah	46	60	106
Vermont	41	98	139
Virginia	1,077	1,557	2,634
Washington	31	165	196
West Virginia	0	10	10
Wisconsin	96	696	792
	10,674	14,729	25,403

3002 Magoffin Ave.

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Effect of Electromagnetic Radiations on Flocculation Tests For Syphilis

EDWARD L. BREAZEALE, M. S.
Tucson, Arizona

V EFFECT OF IRRADIATION AND ADSORPTION OF SERA ON THE SURFACE TENSION AND REFRACTIVE INDEX.

THIS is is the fifth of a series of papers dealing with the effect of electromagnetic radiations on the various flocculation tests for syphilis. In the four preceding papers[1, 2, 3, 4] the effect of violet ray and diathermy short waves on human and animal sera was discussed. This paper will deal with the effects produced by irradiation and adsorption on both positive and negative human sera, and on animal sera.

EXPERIMENTAL

All sera were heated in an electrically controlled water bath at 56° C. for 30 minutes, re-

moved, cooled, and Kline diagnostic, Mazzini, Leiboff, Kahn and Hinton tests performed on each sample. A total of 125 positive and 25 negative human sera, and 25 horse sera were examined during the course of these experiments. All 25 horse sera were examined during the course of these experiments. All 25 horse sera gave uniformally strongly positive reactions (4+) to all the various tests used.

After inactivation, the sera were allowed to come to room temperature (23°C) and the surface tension determined by the du Nouy tensiometer and the refractive index determined by the use of the Abbe refractometer. The sera were then divided into two portions. One portion was adsorbed as described in the fourth paper and this series[4], while the other portion was irradiated until it became sero-negative in the same manner as described in the first paper[1]. Surface tension and refractive index determinations were then made on the treated sera. In every case the supernatent fluid, obtained after centrifugation from the adsorbed sera, was sero-negative.

RESULTS

The results obtained for the untreated, the adsorbed, and the irradiated human sera are shown in Table. A total of 125 positive and 25 negative sera were examined, and the results given are the averages of all determinations.

TABLE I
SURFACE TENSION AND REFRACTIVE INDEX OF HUMAN SERA ON UNTREATED, ADSORBED AND IRRADIATED SAMPLES
(150 Specimens)

		Untreated Sera		Sera adsorbed with Kahn & Hinton Antigen		Sera Irradiated 60 minutes	
		Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Surface Tension at 23° C Dynes per Sq. C. M.	Ave.	68.97	67.74	71.81	69.64	70.05	69.96
	Max.	69.95	68.50	72.50	70.00	71.25	70.25
	Min.	67.90	67.00	69.98	69.00	69.95	69.40
Refractive Index 23°C.	Ave.	1.34850	1.34830	1.36070	1.35880	1.35070	1.35100
	Max.	1.35200	1.34950	1.370010	1.37080	1.36015	1.36200
	Min.	1.34450	1.34630	1.35500	1.35000	1.34500	1.34980

The results obtained using the untreated, adsorbed and irradiated horse sera are shown in Table II. A total of 25 sera were examined, all strongly positive (4+), and the results given are the averages of the total determinations made. In the case of the horse, the functions of the surface tension was a constant, and the refractive index was almost a constant, varying only 0.005 degrees in each set of untreated, adsorbed and irradiated sera.

Table II
SURFACE TENSION AND REFRACTIVE INDEX FOR UNTREATED, ADSORBED AND IRRADIATED SAMPLES OF HORSE SERA
(25 samples)

	Untreated sera	Adsorbed sera with Kahn and Hinton antigen	Sera irradiated 60 min.
Surface Tension 23°C. dynes per sq. c. m.	68.20	73.55	70.53
Refractive Index 23°C.	1.35000	1.36000	1.35000

DISCUSSION

A search of the literature fails to show any work on the values of the surface tension of normal or syphilitic sera. The value obtained as shown in Table I and II are expressed in dynes per sg. c.m. It will be noted that the minimum values obtained for the positive and negative sera all fell within the limits of error of the instrument (1.5% accuracy) and also that the average values obtained for the positive sera were within the rance of the maximum and minimum values obtained for the negative sera. The values obtained on the adsorbed and irradiated sera, while somewhat higher, were still not enough so to be significant. From the results obtained, the effects discussed in the previous papers[1, 2, 3, 4] could not be attributed to a change in surface tension.

Various authors have studied the refractive index of normal and syphilitic sera with a fair degree of agreement for the average value. Mattice[5] quotes Grave as giving the normal value for the refractive index of human sera at 17.5°C. as 1.34920 to 1.35110. Chezet and Koffman[6] give the normal refractive index of horse sera as varying from 1.34660 to 1.34700, and, when irradiated for 30 minutes under ultraviolet ray, as increasing to 1.35270 to 1.35350 at 20° C. These figures agree fairly well with those obtained in these experiments, both for human and horse sera. However, there is little change in the refractive index in the untreated, the adsorbed, and the irradiated specimens. The change while significant, is not sufficient to explain the results obtained in the previous papers[1, 2, 3, 4].

CONCLUSIONS

1. The average surface tension and refractive index for positive and negative syphilitic human sera is given.

2. The average surface tension and refractive index for horse sera is given.

3. The change in surface tension and refractive index upon the adsorption and irradiation of sera is given.

Braezeale Research Laboratory.

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SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

SOUTHWESTERN MEDICAL ASSOCIATION

(Heinz Haffner, Associate Editor)

TREASURER'S REPORT
1941

Income—

Dues, registration, exhibits	$2726.97

Expenditures—

Stationery (including badges, tickets and programs)	$ 300.79
Stamps	64.04
Telegrams, Telephone	10.73
Assistant Secretary and extra clerical help for 1941 session and year, 1941	359.50
Exhibits	181.53
Dinner dance at El Paso Country Club	523.40
Southwestern Medicine	200.00
Guest speakers	918.42
Miscellaneous	14.21
Total	$2572.62
Expenditures	2572.62
Income	$2726.97
Balance	$ 154.35
Registration at 1941 Session	238
Membership	350

The attendance this year was exactly average for a meeting held in El Paso and was practically as big as any previous meeting. The meeting would in all probability have been bigger had it not been that it was held on Thanksgiving day and this was done inadvertently because the President changed the date of Thanksgiving. At this year's meeting members of the Army and Navy were admitted for a registration fee of $2.50 instead of the usual registration fee of $5.00. Programs were printed without cost.

LOUIS W. BRECK, M. D., Treasurer.

MINUTES OF THE 1941 MEETING

The business meeting of the 27th annual clinical conference and meeting of the Southwestern Medical Association was held on November 22, 1941, as a luncheon meeting on the 10th floor of the Hotel Cortez in El Paso, Texas.

The meeting was presided at by Dr. Wm. H. Woolston of Albuqurque, New Mexico, President, and after opening the meeting he read the presidential address entitled "The March of Medicine." Following this the Secretary-treasurer's report was read and will be found on a separate sheet attached herewith. The motion was made, seconded and passed to accept the report of the Secretary-treasurer.

Twenty-two new members were voted into the Southwestern Medical Association after their applications had been approved by the censors.

The nominating committee, Dr. W. W. Waite, El Paso, Chairman; D. C. R. Swackhamer, Superior, Arizona, and Dr. R. W. Mendelson, Albuquerque, made their report as follows: For President-elect, Dr. K. D. Lyneh, El Paso; First Vice-President, Dr. J. W. Hannett, Albuquerque; Second Vice-President, Dr. Fred G. Holmes, Phoenix, and Secretary-Treasurer, Dr.

Louis W. Breck, El Paso. A motion was made, seconded and passed to accept the report of the nominating committee and elect the officers by unanimous ballot.

The necrology committee, Dr. Wydler, Albuquerque, Chairman; Dr. W. R. Jamieson, El Paso, and Dr. W. W. Watkins, Phoenix, made its report as follows: "The necrology committee begs to report that during the past year our ranks have been thinned by three members, Dr. Henry Safford, Jr., El Paso, Texas; Dr. Hillard Camp, Pecos, Texas, and Dr. R. D. Kennedy, Globe, Arizona. These are men that we all regret losing, men that will be missed, men that we all admired. We suggest that notice of their death be spread upon the records of our Society and that our Secretary be requested to express our regrets to their families." A motion was made, seconded and passed that the report of the necrology committee be accepted.

The President-Elect, Dr. C. A. Thomas, Tucson, Arizona, was introduced by Dr. Woolston. Dr. Thomas made a few short remarks and then presided at the meeting.

A lively discussion of the next meeting place was held in which both Albuquerque and Tucson were offered as meeting places and their advantages and merits described. A motion was made that Albuquerque be the place for the 1942 meeting. The motion was seconded and passed.

The Secretary-Treasurer brought up the matter of collecting the registration fees and dues from members attending the meeting and pointed out that a substantial number of men went to the meetings without paying. The matter was discussed at some length by the members present and a motion was made, seconded and passed that at the next meeting admission to all sessions be by badge only and that a definite guard of some type be placed at the entrance to all sessions.

A motion was made, seconded and passed that a committee be appointed to find the former constitution and by-laws and investigate them and bring them up to date. The President appointed Drs. Egbert, Waite, and Breck of El Paso on this committee, Dr. Egbert being Chairman.

Suggestions for making the next meeting bigger brought up and one in particular was felt worthwhile, which was that the County Societies in the States constituting the Southwestern Medical Association appoint a Chairman to advertise the next meeting and attempt to get men to attend it.

A motion was made, seconded and passed that the Secretary write the guest speakers thanking them for their splendid cooperation in making this 1941 meeting a success.

A motion was made, seconded, and passed that the Secretary write a letter to the Committee Chairmen, Ladies, Press and all others who helped to make this meeting a success.

Meeting adjourned.

Louis W. Breck, M. D.
Secretary.

NEWS

General

Five postgraduate courses in obstetrics, each of four weeks duration, will be offered at the Chicago Lying-in Hospital between January 12 and June 6, 1942. These are sponsored by the Illinois State Department of Health and the Children's Bureau of the U. S. Department of Labor. The features of the program consist of observations on current managements of normal and abnormal states of the pregnant, parturient, and puerperal patient. Lectures, demonstrations, clinics, and other teaching means augment the operating room and birth room observations, and ward round discourses. The course is run on a non-profit basis. A deposit of $25.00 is required on registration, $10.00 of which is refunded at the completion of the course. All the members of the department participate in giving the courses. Additional information and application blanks may be obtained by request from Postgraduate Course, Department of Obstetrics and Gynecology, 5848 Drexel Avenue, Chicago, Illinois.

The government is faced with a critical need for physicians to serve as Associate Medical Officers in the federal civil service in such agencies as the Veterans Administration, the U. S. Public Health Service, the Indian Service, and others. In August of 1940, the Civil Service Commission announced an examination (Announcement No. 101) to fill Medical Officer positions of various grades in the government service. This examination has been closed and reannounced (Announcement No. 130) with certain modifi-

cations. Applications will be accepted until further public notice.

The examination covers three grades: Associate Medical Officer, $3,200 a year; Medical Officer, $3,800 a year and Senior Medical Officer, $4,600 a year. Applicants for the Medical Officer grade must have graduated from a medical school (Class A) since May 1, 1920, and for the associate grade, since May 1, 1930. No specified time limit is set for graduation for the senior grade.

No written test is required. Applicants are rated upon their education and experience. Senior Medical Officers must have had professional experience in one of the following: Aviation medicine, cardiology and public health (general). Qualifying optional branches for the Medical Officers and Associate Medical Officers include: Aviation medicine, cardiology, dermatology, eye, ear, nose and throat (singly or combined), general practice, industrial medicine, internal medicine and diagnosis, medical pharmacology, neuropsychiatry, pathology, bacteriology and roentgenology (single or combined), public health, surgery, tuberculosis, urology and cancer. The maximum age limit for all grades has been raised to fifty-three.

Announcements and application forms may be obtained at any first- or second-class postoffice, or from the Civil Service Commission, Washington, D. C.

At the annual session of the Southwestern Academy of E. E. N. & T. in El Paso, November 20-22, 1941, the following officers were elected to serve for 1942: Dr. H. Brehmer, Albuquerque, President; Dr. Dake Biddle, Tucson, Vice-President; Dr. A. E. Cruthirds, Phoenix, Secretary and Treasurer.

At the meeting of the Southwestern Chapter of the American College of Chest Physicians, held in El Paso on November 19, 1941, the following officers were named to serve for the coming year: Dr. Orville Egbert, El Paso, President; Dr. R. O. Brown, Santa Fe, Vice-President; Dr. R. B. Homan, Jr., El Paso, Secretary

NEW MEXICO MEDICAL SOCIETY
(L. B. Cohenour, Associate Editor)

The date of the annual meeting of the New Mexico Medical Society has been announced—from June 26 to 28, 1942. Headquarters will be the La Fonda Hotel, Santa Fe, New Mexico.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
(W. John Pangman, Associate Editor)

At the recent meeting of the Southern Medical Association in St. Louis, Dr. L. O. Dutton of El Paso, was elected Secretary of the Allergy Section.

The staff of Hotel Dieu held its annual election of officers on December 2. The following were chosen: Dr. J. L. Green, Chief of Staff; Dr. Louis Breck, Vice-Chief; Dr. M. S. Hart, Secretary; Dr. Russell Holt, Chief of Surgical Service; Dr. S. R. King, Chief of Medical Service.

The regular meeting of the El Paso County Medical Society was held in the tea room on November 24, 1941. The meeting was presided at by Dr. Varner, the President. The minutes of the previous meeting were read and approved.

A letter was read from Dr. Homan Taylor regarding the matter of the library of the State Association in which the value of the library and its package service was pointed out and in which Dr. Taylor urged members of the State Society all over the state to contribute gifts and donations to the library.

Another letter was read from the State Department of Public Welfare in which was described the new act for aid to dependent children including the agreement between the Texas Medical Society and the Department of Public Welfare regarding examination of parents of dependent children.

The program was presented which consisted of the following papers:

School Health Program by Dr. Walter Knox.

Psychiatric Work in the Public Schools by Miss Lila McNutt.

Sterilization of the Unfit by Dr. W. M. Branch. Discussion by Dr. Swope.

Meeting adjourned.

LOUIS W. BRECK, M. D., Secretary.

At the meeting of the El Paso County Medical Society on December 8, 1941, at Hotel Cortez, the program was:

1. Early Diagnosis of Cancer, Dr. William Carpenter MacCarty, pathologist of Mayo Clinic.

2. Annual business meeting and election of officers.

MISCELLANY

CONTACT DERMATITIS—IRRITANTS AND AREAS OF INVOLVEMENT

Scalp and forehead:

Cosmetics—hair dyes, wave sets, shampoos, tonics, perfumes.

Medication—ointments, lotions.

Headwear—hats, cleaning fluids, dyes, hatbands.

Miscellaneous—hairpins, combs, headdress, phylacteries.

Eyebrows and eyelids:

Cosmetics—Eyebrow pencils, mascara, Lash Lure, hair tonics, creams used on face.

Substances used by wife—contact to husband and vice versa.

Medication—nasal sprays containing ephedrine, mercury ointment, atropine, secondary to scalp medication.

Ears:

Earphones, spectacle earpieces, perfumes, scalp and hair preparations.

Circumoral region:

Cosmetics—lipstick.

Toilet articles—tooth paste and tooth powder, mouth washes.

Foods—fruits, raw vegetables, chewing gum.

Metals—wind instruments, dentures, pipes.

Neck:

Cosmetics—hair preparations, perfumes, wave sets, facial cosmetics.

Wearing apparel—furs, dyes in cloth, scarfs, and wool neckpieces, cleaning fluids.

Miscellaneous—plants, dust, fumes.

Breast:

Rubber, perfume, rayon.

Axillae:

Shields, deodorants, dyes in clothing, shaving, cleaning fluids.

Torso:

Rayon, rubber in girdle, soap.

Arms and forearms:

Clothing—rayon, wool.

Metals—bracelets, wrist watches.

Miscellaneous—leather straps, lacquer in jewelry, bridge tablecloth (rubber).

Hands:

Chemicals—alkalies, solvents, all chemical used in professions, trades, and avocations, soaps.

Cosmetics and wearing apparel—gloves, jewelry, nail polish, nail polish remover.

Oils and waxes—vegetable oils (plants and fruits), polishing wax.

Miscellaneous—anything may become an irritant—paints, dyes, toys, newspapers, lacquer, novocain, antiseptic soaps.

Groin and genitals:

Contraceptives, menstrual pads, medication, dyes in clothing.

Legs:

Contraceptives, clothing, chemicals in pockets, e. g., matchbox dermatitis (sulfur).

Feet:

Dyes in socks, leather, shoes, rayon, nylon.

Medication. —*Penn. Med. J.*

5-DAY ARSENOTHERAPY

The proponents of massive arsenotherapy in early syphilis set forth its advantages as follows:

1. By this method the infectious lesions of early syphilis are rapidly sterilized. Treponema pallida disappear within twenty-four to forty-eight hours, and the lesions remain free of spirochetes and heal rapidly.

2. Only five days are required to complete the course of treatment. Thus, the prolonged treatment over a period of two or three years, necessitated by the present methods of multiple injections, is eliminated.

3. All patients who are placed under treatment complete their course. In contrast, 20 to 80 per cent of the patients treated by the usual methods disappear from observation before therapy is completed.

4. The percentage of satisfactory therapeutic results is as great, or greater, than in the methods now in use.

5. A massive sterilizing dose of a spirocheticide accomplishes the primary aim of Ehrlich.

6. Administration of massive doses of the arsphenamins by the continuous drip method eliminates the phenomenon of speed shock.

7. Serious toxic reactions may be avoided by substituting mapharsen for neoarsphenamin.

The disadvantages of the massive arsenotherapy in early syphilis may be stated as follows:

1. The five-day treatment is still in the experimental stage. It should, therefore, be thoroughly investigated in hospitals equipped to carry out the procedure and to do proper follow-up studies before it is submitted for general application by practicing physicians and by clinics. A period of several years will probably be required to accomplish this.

2. It is a hospital procedure and entails considerable expense.

3. Sufficient time has not elapsed to evaluate the final therapeutic results and the toxic end-effects.

4. Neoarsphenamin is too toxic to be practical for application by this method.

5. Mapharsen is definitely less toxic than neoarsphenamin and may be used in its place. However, it has been employed for too short a time to determine its therapeutic value. To date, the therapeutic results with mapharsen have not been as satisfactory as those reported with the use of neoarsphenamin.—*Calif. & West Med.*

THE INSULINS

Protamine-zinc insulin is the fundamental insulin.

Crystalline insulin is the accessory insulin.

Protamine-zinc insulin is given but once a day before breakfast.

Crystalline insulin may be given as often as necessary, but usually only once daily as a separate injection at the same time that protamine-zinc insulin is injected.

During surgical procedure, obstetric labor and coma, quick-acting insulin alone is in our experience more satisfactory.

Insulin is always necessary in the treatment of diabetes in children and should practically never be omitted even for very brief periods.

Insulin should be used more freely.

The value of education of the patient, accuracy with the diet and greater publicity regarding diabetes should be emphasized.

Early diagnosis and prompt, exacting treatment is the challenge of the hour.—*N. W. Med.*

SHOCK TREATMENT

Promptness in treatment is imperative. While severe shock may not respond to any form of treatment, early treatment may prevent the tissue anoxia with the resultant shock, or may prevent an irreversible action due to delay of treatment. One continues treatment governed largely by the effect on the blood pressure, or as Freeman[1] puts it, till there is a good blood flow, as reflected by good color, warm extremities, and a full pulse.

(1) Blood transfusion takes first place in the treatment of shock. Because of its protein content and the consequent high colloidal osmotic pressure, plasma does not leave the circulation as crystalloid solution, and therefore with its use it is possible to regulate effectively the volume of circulating blood. In hemorrhage particularly is blood transfusion valuable in that it not only replaces plasma but also red blood corpuscles which the patient has lost. However, in all other conditions of shock where there is a hemoconcentration, citrated plasma, or, better still, serum, is more desirable, for the following reasons:

(a) It does not add to the concentration of erythrocytes;

(b) No grouping or cross matching is necessary as it is entirely safe and free from reactions;

(c) It can be used in large and repeated doses;

(d) It is readily prepared, easily transported, and can be made available for instant use.

(2) Glucose and saline should be given as supplementary treatment and in moderate amount. Care, however, should be taken not to force too much fluid by mouth, as this may lower the blood chemistry by dilution and cause water intoxication. Nor is too much intravenous salt solution desirable as the fluid escapes too easily from the capillaries and adds to the waterlogging of the patient. Acacia solution may cause damage to the kidneys or liver, and is a foreign substance as far as blood is concerned. However, in the presence of exicosis (merely water deficiency) saline and glucose is perhaps the best infusion fluid.

(3) Other treatment. Absolute rest in bed should be secured, and pain and distress relieved. Morphine and alcohol are indicated. Tea, coffee, caffeine, and other stimulants may be of value. Body heat must be maintained. In abdominal distension, pitressin (1 cc) may be valuable. In short, all supportive measures are indicated. Epinephrine, according to the experi-

ence of Freeman[1] and others, not only does no good, as it does not act on the capillaries, but may do harm by constricting the smaller blood vessels and thus further cutting down on the blood supply of the capillaries.

CONCLUSION

This, in short, represents the present prevailing views on the mechanism of shock. There are many controversial points. Many ideas are still nebulous, but little by little the secrets of the intricate mechanism of the human machine are being exposed to the investigating eye. The future is promising.—*Ohio St. M. J.*

HITLER PSYCHED

In contrast to Churchill who is obviously an adult, well matured individual in contact with reality and with a sense of world values, Mr. Hitler presents an interesting but comparatively simple problem in psychopathology, and one that should be fairly familiar to those of you who have worked in child guidance clinics. It is the character pattern of the bully. The bully, as you all know both from your professional experience and from your personal experiences in childhood and adolescence, has an inadequate ego—he suffers from emotional retardation. Bullying is a desperate attempt at ego satisfaction through the defeat of younger or smaller opponents. It naturally implies the ability to roar "foul" at your opponent while at the moment you are gouging out his eye. Above all, it implies bluster and bluff, lack of sportsmanship and an utter disregard of the rules of the game. Men who are intrinsically weak and inadequate sometimes become very successful bullies, and they may go for years and years carefully choosing their opponents, making certain that their ego is not endangered by an encounter with an opponent of nearly equal size and ability. The bully must have the cards always stacked in his favor; he must have all the odds on his side. You and I know that once the odds are nearly even, or if they favor an opponent, then the bully is licked even before a blow is struck.

It seems to me to be particularly important today to remember that fact in our appraisal of the world scene, and for us to remember that bluff and bluster, vengefulness and cruelty are the marks of weakness, not strength—for what is true of the pathetic patient you observe in your clinic is equally true of the men who through force of circumstance are now occupying the world stage.—*Conn. St. Med. Jo.*

CAVERNOUS SINUS THROMBOPHLEBITIS

(Findings in 7 cases)

Case	Lesion	Condition	Orbital Edema	Ophthalmoscopy		Exophthalmus	Extraocular Movements
				Papill-edema	Dilated Veins		
1	Pustule left upper eyelid	Semistuperous. Septic temperature	Left eye Spread to right eye on 4th day	None	Present (bilateral)	Bilateral	Limitation of external recti
2	Right upper and lower 3rd molars removed	Irritable. Septic temperature	Right eye completely closed	None	Present	Right eye	Ptosis. Limitation of right external rectus
3	Acute left frontal sinusitis	Semicoma. Septic temperature	Left eye. Spread to right eye on 3rd day	None	Present (bilateral)	Bilateral	Limitation of left external rectus
4	Pustule left lower eyelid	Restless Septic temperature	Left eye completely closed	None	Present	Left eye	Limitation of all movements of left eye
5	Postoperative submucous resection and bilateral antrotomy	Lethargic Septic temperature	Left eye partially closed	None	Present	Left eye	Paralysis left external rectus. Limitation left internal rectus
6	Pustule on nose	Lethargic. Septic temperature	Right eye. Spread to left eye on 3rd day	None	Present (bilateral)	Bilateral	Limitation of external recti
7	Pustule on right zygoma	Restless. Septic temperature	Right eye partially closed	None	Present	Right eye	Slight limitation of right external rectus

—*J. Mis. St. Med. Assoc.*

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BOOK NOTES

Book Review Editor:
L. O. DUTTON, M. D.
Mills Bldg., El Paso, Texas

TEXTBOOK OF BACTERIOLOGY: By R. W. Fairbrother, D. Sc., M. D., M. R. C. P., Director of the Clinical Laboratory, Manchester Royal Infirmary; Special Lecturer in Bacteriology University of Manchester; Major, R. A. M. C.; Late Research Fellow in Bacteriology, Lister Institute, London. 442 pages. The C. V. Mosty Co., St. Louis, Mo. Price $5.00.

This is the third edition of a popular textbook which has gone through two editions and three reprintings since 1937. The volume follows the conventional line of the usual textbook of bacteriology, and has a section devoted to general bacteriology, one to systematic bacteriology, and a third to general technique.

That part devoted to systematic bacteriology concerns itself primarily with pathogenic bacteria, although there is much of interest to the general student. The text is primarily descriptive and is well brought up-to-date. The major advances in virus diseases, the rickettsiae and bacteriophage are well explained. This volume could be improved with more illustrations, but on the whole, it is a conservative well-rounded text, either for the general or the medical student of bacteriology.—*L. O. Dutton.*

CARDIAC CLINICS. A Mayo Clinic Monograph. By Frederick A. Willius, B. S., M. D., M. S. in Med. Head of Section of Cardiology, Mayo Clinic, and Professor of Medicine, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota, Rochester, Minn. 267 pages. The. C. V. Mosby Co., St. Louis, Mo.

Into this small volume the author has crowded a great deal of valuable information. As is stated by the author, the purpose of this book is to give in a clear, concise, abbreviated manner valuable points that will be useful to the general practitioner in handling the usually encountered cardiac conditions.

The material is covered in short sections, which are independent of one another, as the volume is a compilation of clinic held over a period of time. The viewpoint is that of interpreting cardiac disease in the light of history and clinical symptomatology. Little attention is paid to the usual laboratory procedures employed. The various entities discussed are illustrated by case histories, which are quite complete and very much to the point.

In addition to these discussions of definite disease entities, there are interesting and informative sections on signs and symptoms, treatment, management, historical reviews, and certain highly thought-provoking sections, such as the philosophy of convalescence and the misuse of medical terms, which fit in nicely with the general tenor of the volume. The book can be highly recommended to those who are not specializing in the treatment of heart disease, and

likewise, it should be in the library of every specialist in this field.—*L. O. Dutton.*

SYNOPSIS OF APPLIED PATHOLOGIGCAL CHEMISTRY: By Jerome E. Andes, M. S., Ph. D., M. D., F. A. C. P. Director of Dept. of Health and Medical Advisor, University of Arizona, Tucson; formerly assistant Professor of Pathologoy and Clinical Pathology, West Virginia University Medical School; and A. G. Eaton, B. S., M. D., Ph. D., Assistant Professor of Physiology, Louisiana State University School of Medicine, New Orleans. 428 pages. C. V. Mosby Co., St. Louis, Mo.

This volume is intended by the authors as a practical, simple, and easily read text on the application of pathological chemistry (especially the chemistry of the body fluids) to clinical medicine.

The first chapter gives a general outline of the changes in the blood in health and in disease, and is really a summary of the chapters that follow.

The authors seem to have a true sense of the value of the chemical analysis of body fluids to clinical medicine. They state that laboratory analysis should be used only to supplement clinical findings, and should be relied upon only when carried out by competent laboratory workers.

The first part of the book is devoted to the chemistry of the blood. In this section the important constituents of the blood are considered. They are discussed from the standpoint of both physiological and pathological changes. For each of these constituents they give in tabular form the pathological conditions in which there is significant change. One may see almost at a glance what procedures would be of value in diagnosis or prognosis of a disease under consideration of cerebrospinal fluid, urine and renal function tests, liver function tests, gastric analysis, and basal metabolism.

There is an appendix of 35 pages devoted to a discussion of preparation of reagents and standard solutions.

Because of its simplicity of outline and the liberal use of tabular forms, it affords readily accessible information in such a manner as to make the book useful as a handbook as well as a text.—*L. O. Dutton.*

ESSENTIALS OF GENERAL SURGERY: Wallace P. Ritchie, M. D., Clinical Assistant Professor, Department of Surgery, University of Minnesota Medical School. The C. V. Mosby Co., St. Louis, 1941. Pages—813. Illustrations—237. Price—$8.50.

The author has succeeded admirably in crowding a tremendous amount of surgical knowledge into one relatively-small volume. Essentially a

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**J.A.M.A., 93:1110, October 12, 1929*
Bruckner, Die Biochemie des Tabaks, 1936
***The Military Surgeon, Vol. 89, No. 1, p. 7, July, 1941*

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text for students, the book is divided into 36 chapters, beginning with a brief history of surgery, ending with a rather full outline of urology. The chapter on anaesthesia is concise, but covers the essential properties and effects of all commonly used anaesthetics, together with technique of administration. Surgical technique is considered in an academic manner, including description of instruments, antiseptics and sutures. It is quite probable, however, that every practicing surgeon would learn something by reading these two chapters.

Surgical diseases are described with regard to incidence, etiology, pathology, symptoms, diagnosis and treatment. Very little space is devoted to actual technique of operations. The common surgical diseases, e. g., appendicitis, are discussed in more detail, including differential diagnosis. The chapter on fractures is scarcely more than an outline, but orthopedic surgery covers 72 pages. To quote Wangensteen, the book, "should constitute a satisfactory introduction for the study of surgery." For the practicing surgeon, it should be a handy volume for refreshing his memory on essential facts regarding surgical treatment, and for bringing his information up to date.—*J. L. Green.*

A SOUTHWESTERN VISIT

Early away from our present station on the Gulf—pink clouds cover the Naval Air Station . . . then weary paved miles Westward until afternoon brought view of stately purple mountains and a grand feeling of home again . . . the lights of El Paso in the early dark . . . bracing, sharp air and a sound long sleep . . . so on Thursday to the Cortez Hotel, and first to shake hands was the Grand Old Man of Arizona medicine, C. R. Swackhamer . . . Gradle of Chicago in the dining room, holding his auditors, Cruthirds of Phoenix and Walsh of Douglas . . . Watts of Silver City, fresh despite a night operating . . . newspapermen photoing the big shots . . . passing the greetings to Woolston of Albuquerque . . . Breck of El Paso running a spanking good show . . . Haffner and Murphy of El Paso, heads together . . . so many Army uniforms, little gold braid, but lots of brass buttons . . . Gallagher of El Paso, gracing his uniform with splendid carriage . . . the fine scientific exhibits, indicating a lot of work on someone's part . . . and once again greeting a host of friends from the commercial houses . . . Gradle and Galloway of Northwestern U, giving out the latest and best to the EENT

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their elaborate displays, hammering, crating, cussing . . . the litter of figured-on paper around Secretary Breck's desk . . . the widespread conviction that Breck and Woolston have done the best job yet for a meeting . . . Albuquerque and Tucson wanting the 1942 session, with fair New Mexico winning . . . Thomas of Tucson takes the gavel from Woolston of Albuquerque, and bangs out the last moments of 1941's very, very expert meeting . . . goodbyes and thumbs up to good friends, and so marks the end of 27 years of high service for the Southwestern.

REPORT OF EDITOR TO BOARD OF MANAGERS SOUTHWESTERN MEDICINE

Board of Managers,
Southwestern Medicine.
Sirs:

Herewith your Editor submits his annual report for the past year, embracing the issues of Southwestern Medicine for the following months:

1940
November
December

1941
January
February
March
April
May
June
July
August
September
October

During the period covered, the following summarizes by departments the material published:

Original Scientific Articles	64
Editorials	41
Communications	17
News Notes	76
Auxiliary News Items	5
Miscellaneous Abstracts	83
Book Notes	46
Illustrations	35
Special Sections	9
(Arizona State Medical Society	6)
(New Mexico Medical Society	2)
(S. W. Medical Association	1)

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Biographies of Presidents of
Societies owning the Journal 4
President's Page (Arizona) 4
Program Supplements 3
(1 each for Arizona, New Mexico)
(and S. W. Association)

After study of various type faces it was concluded that the old, 8-point on 10-point slug was more difficult to read, and, therefore more tiresome to the eyes than several other available type faces. Hence, beginning with the issue of June 1941, an extremely well-designed, legible 10-point type was selected. Following favorable comment from readers, this new type was employed in all subsequent issues.

For the first time in the present regime a two-color cover was used in the issue of October, 1941. It was hoped that, without garish display, reader's attention would be directed to the contained scientific programs. Too frequent use of this procedure would be ill-chosen, but at intervals two-color covers would seem to be worthwhile as attention arrestors.

As in previous years, publicity was generously given to the annual meetings of the Societies owning the journal. This took the form of notices on the covers, well in advance of session dates, display advertisements in the Scientific Departments (the only advertisements allowed therein), editorials calling attention to forthcoming meetings, and colored program inserts. Following the various sessions, full editorial comment on work accomplished, election of officers, etc., was published.

Early in February, 1941, the Editor was called into active service as an officer in the Medical Corps of the United States Naval Reserve. The Board very kindly voted to allow the Editor to continue his work for the journal, with the understanding that previous standards would be maintained in all respects. The only change the Editor has encountered in editing the journal from a distance of one thousand miles, rather than four hundred miles, is that material is prepared for the printer a few days earlier than was customary previously. Military duties have not to date interfered in the slightest with the task of editing and writing for the journal, the reverse likewise being true.

In conclusion, the Editor wishes to thank the members of the Board for their confidence in his ability to carry on the editorship of the journal

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■

CRUM EPLER, M. D.
Superintendent

in the face of his removal from private practice to service in the United States Navy. It is apropos to herein state that, when released from military service, the Editor will again take up residence in his Southwestern home.

Respectfully submitted,
M. P. SPEARMAN, M. D.

ANNUAL REPORT—SOUTHWESTERN MEDICINE

The fiscal year for SOUTHWESTERN MEDICINE terminates November 1 of each year prior to the Annual Meeting of the Southwestern Medical Association. The Board of Managers for the Journal meets at that time and transacts its business for the ensuing year.

At the meeting of November 21 last the following business was transacted:

1. Reports of Editor and of Secretary-Treasurer accepted as given.
2. EDITOR for 1941-1942—Dr. M. P. Spearman of El Paso was re-elected as Editor.
3. OFFICERS OF BOARD OF MANAGERS: Dr. W. B. Cantrell of Albuquerque and Dr. D. F. Harbridge of Phoenix were re-elected Chairman and Secretary-Treasurer of the Board, respectively.
4. PRINTING CONTRACT was re-awarded to the Taylor Printing Company of Phoenix.
5. It was voted that the Journal not be sent physicians in service, whose dues, with their constituent societies have been waived for the year, unless subscription is remitted by either the physician or his local society.
6. FINANCIAL POLICY:
   a. It is the policy of the Board of Managers, in keeping with similar policies of the majority of medical journals, to charge the cost of cuts in connection with scientific articles against the authors of the same, except in the case of guest speakers before the constituent owning societies of the Journal in which instance two cuts will be permitted per article at the expense of the Journal.
   b. Policies as to expense of Editor and Secretary-Treasurer of the Board were continued, the following Financial Report being given and accepted:

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November 1, Fiscal Year

TOTAL RECEIPTS, ALL SOURCES

BALANCE, NOVEMBER 1, 1940		$1,384.45	
SUBSCRIPTION DUES:			
Arizona Medical Association	$ 730.00		
El Paso County Medical Society	216.00		
Miscellaneous	15.70		
New Mexico Medical Society	506.00		
Southwestern Medical Ass'n.	200.00	1,667.70	
TOTAL RECEIPTS			$3,052.15

TOTAL DISBURSEMENTS

EDITOR	$1,224.00		
PRINTER	198.73		
SECRETARY-TREASURER	275.00		
TOTAL DISBURSEMENTS		1,697.73	1,697.73
TOTAL BALANCE, NOV. 1, 1941			$1,354.42

Members of the Board of Managers

W. B. Cantrell, M. D., Albuquerque, New Mexico	Chairman
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R. W. Mendelson, M. D., Albuquerque	Member
W. K. Wylder, M. D., Albuquerque	Member

Note: Each of the constituent owning societies of the Journal—Arizona, El Paso County Medical Society, New Mexico and Southwest Medical Association—has two members each on the Board of Managers.

Respectfully submitted,

D. F. HARBRIDGE, M. D., Secretary-Treasurer.

THE "SULFA" DRUGS

In 1937 sulfanilamide became available generally and proved to be extremely useful in the treatment of infections due to B. hemolytic streptococci and meningococci. In addition, the drug soon was being employed in urinary tract infections, trachoma, chancroid, lymphogranuloma venereum, and certain cases of gas gangrene, and actinomycosis. Approximately two years later sulfapyridine was being widely used in the treatment of pneumococcal infections and was found to be more effective than sulanilamide against gonococci. After only another year sulfathiazole begun to replace sulfapyridine because it was as effective against pneumococci and gonococci, more effective against staphylococci, and occasioned fewer reactions. In urinary tract infections sulfathiazole was superior to sulfanilamide in most cases. Now sulfadiazine is being introduced and it has the advantage of a lower index of toxicity, which makes possible the maintenance of high blood levels.

This group of drugs has become exceedingly widely employed. Soon there will be only a small proportion of the general population which has not received one of them as treatment of some variety of infection (South. M. J., 34: 1214, 1941). It behooves the physician to choose

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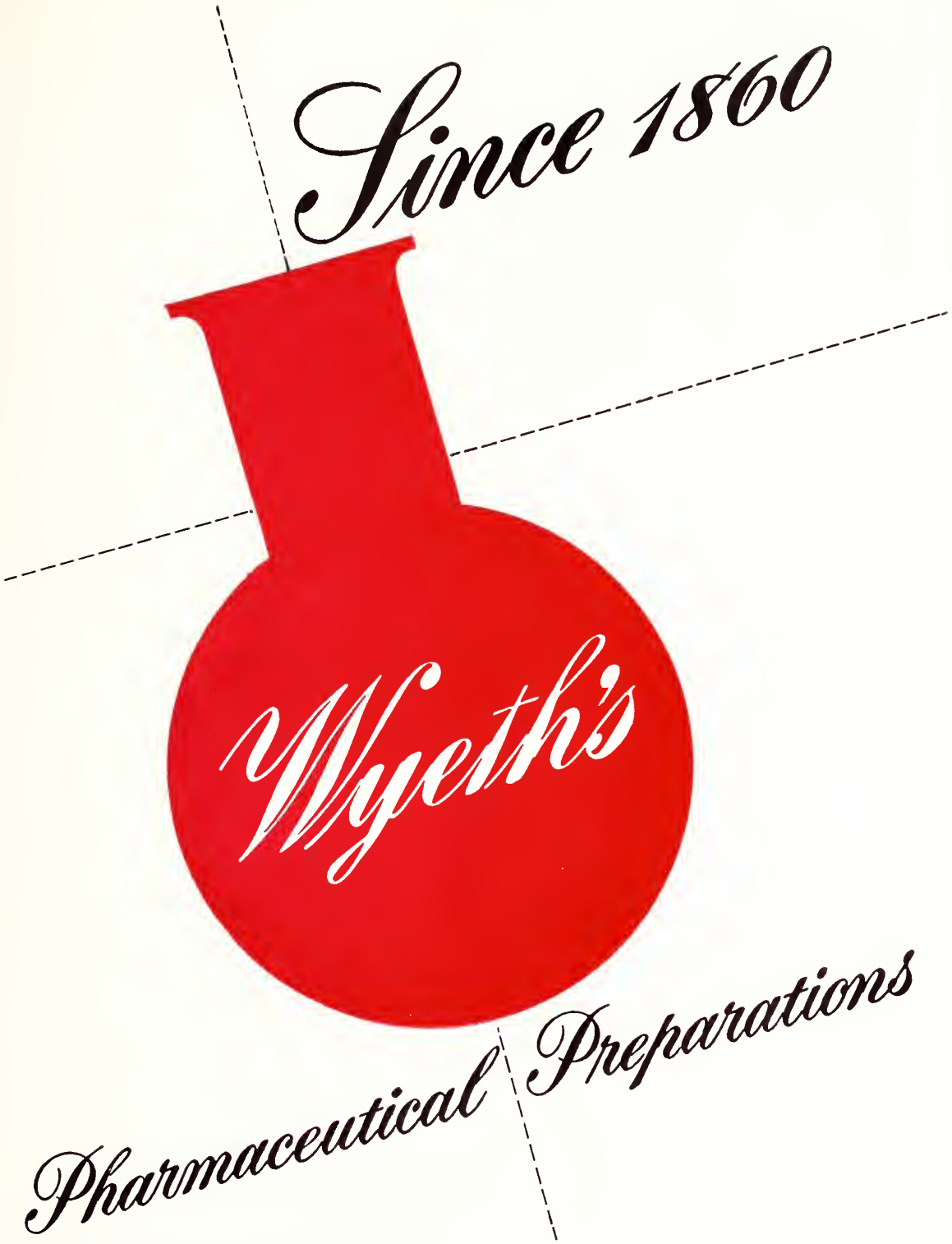

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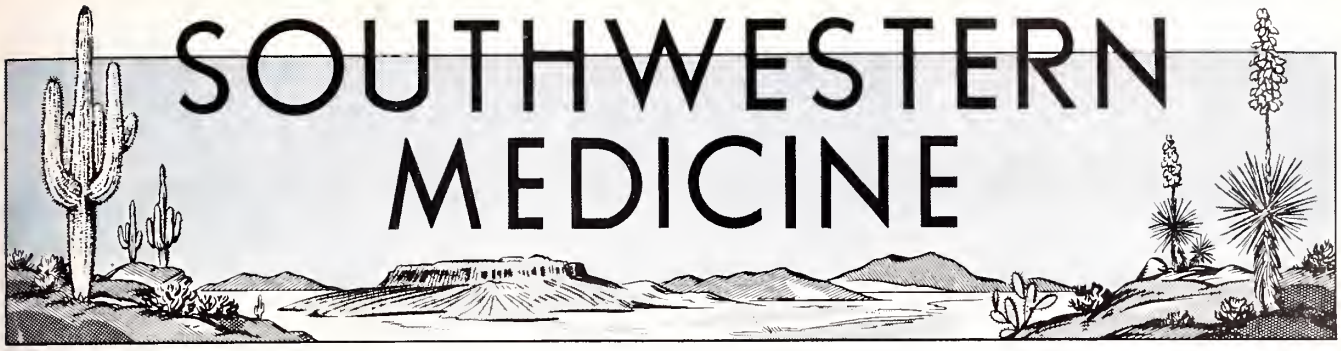

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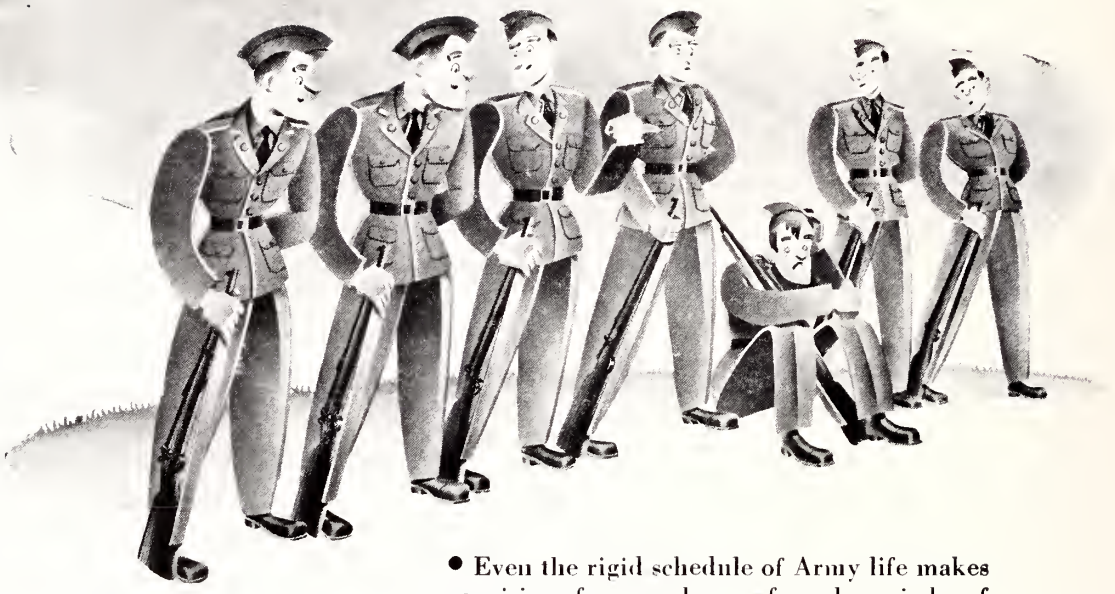

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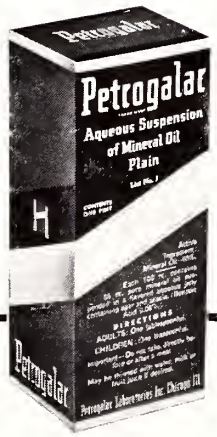

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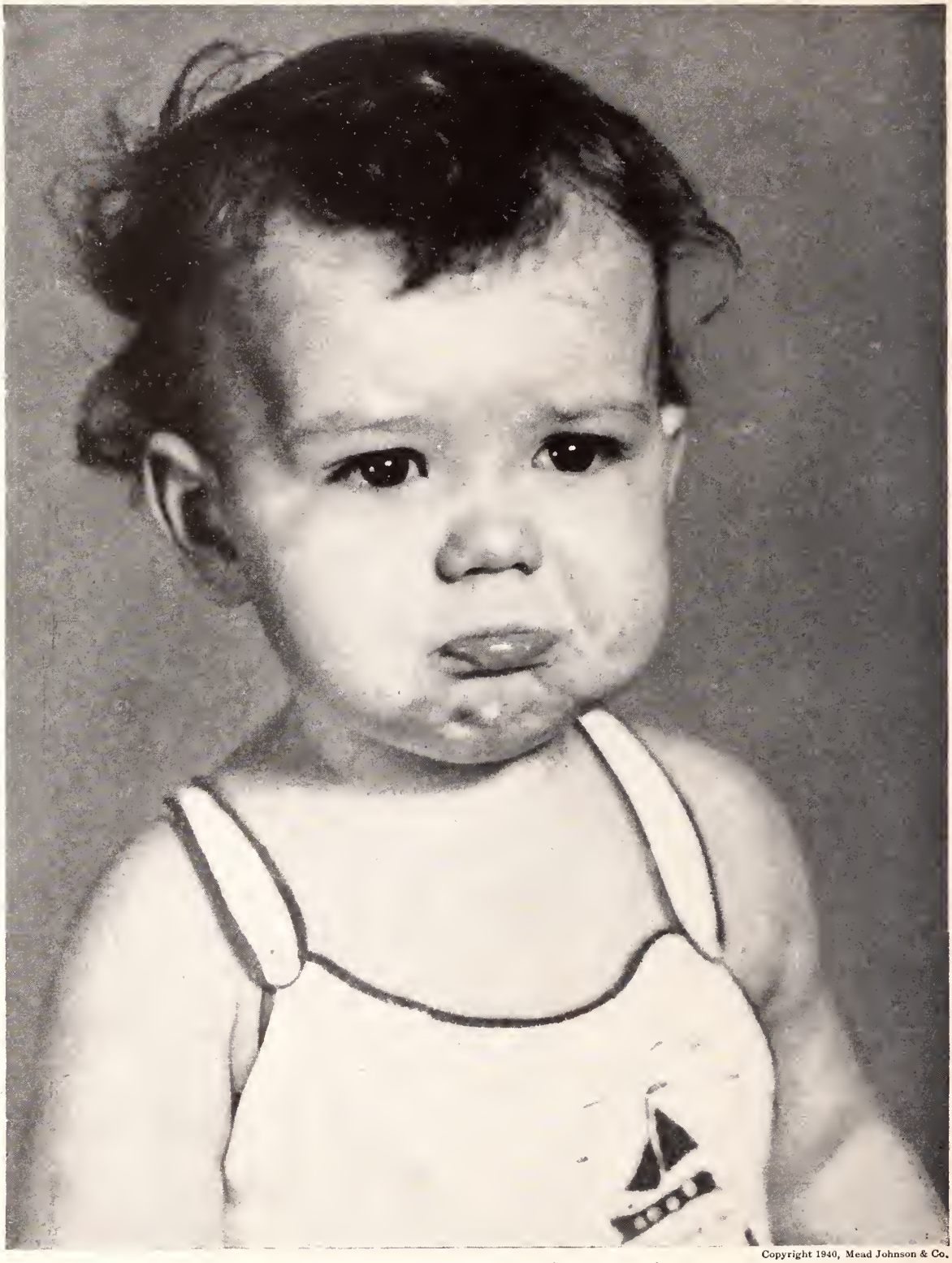

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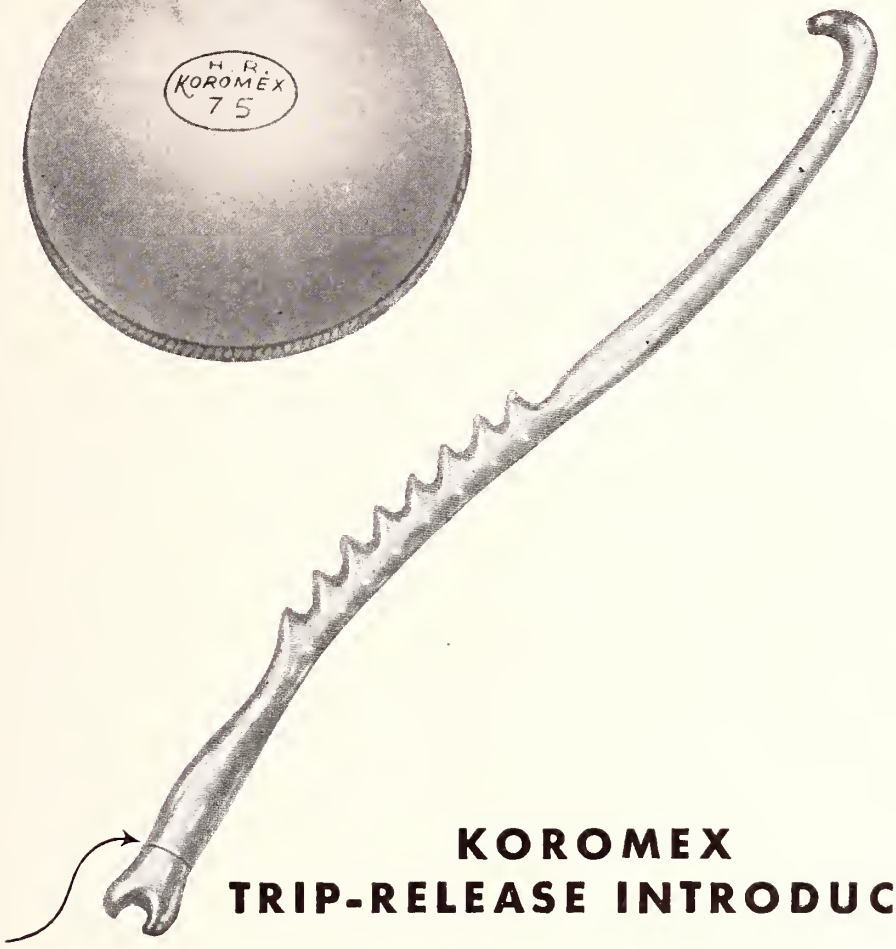

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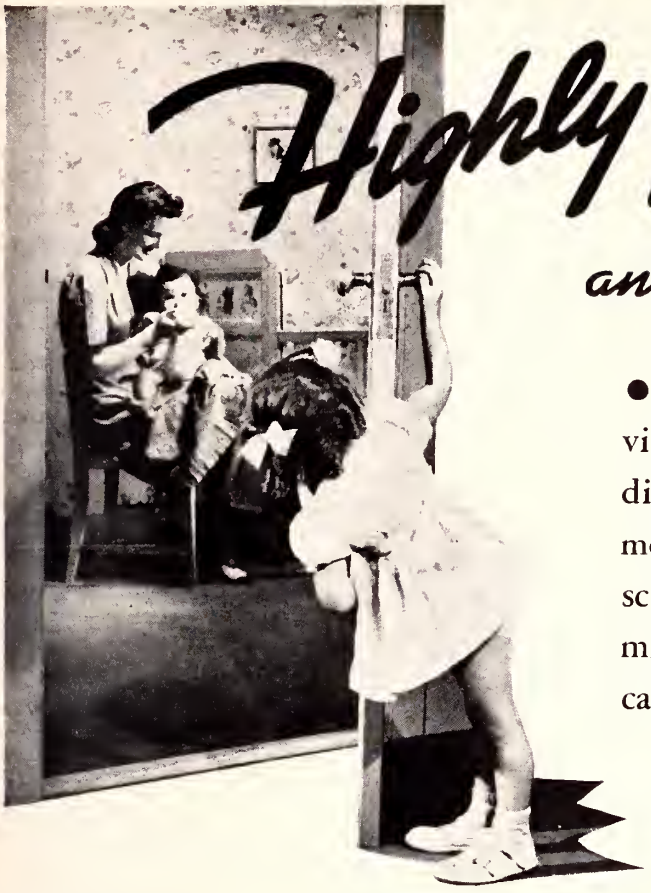

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HOW TO HELP

In the August issue of Southwestern Medicine, Before Pearl Harbor, 1941, there was printed an editorial on the role of the County Medical Society in preparing for war. That article was presented "just in case," and as a timely hint to get abreast of the trend at that time. Well, the "just in case" has happened—and the advice contained in that editorial is more timely than ever. So, for any who did not read it, herewith a repetition:

What to Do

In the civilian population there is in general quite as much willingness to adopt measures of preparedness in the defense of this nation as exists in the military services. The question so often is "What To Do?" That is well answered by the Lehigh County (Pa.) Medical Bulletin—at least for the civilian medical profession. The schedule is frankly modelled after proeedures found feasible by the British. When these ideas were first promulgated it will be recalled that the war was called "phony" by various of our heavy thinkers, and many in England were inclined to scoff rather cynically at civilian defense measures. Tragically enough, the scoffers at the "Home Guards" saw the day come when civilian defense alone saved the country from downfall. May that day never come to America. Yet to the foresighted, the hints below may be valuable:

What the County Society Can Do:

1. Bolster and aid in maintaining public morale.
2. Sponsor
   a. Blood typing campaigns
   b. Tetanus immunization campaigns, and
   c. Later—typhoid inoculations
   d. Rodent control, information controls
3. Establish (provisionally) the organization for
   a. Base hospitals
   b. Clearing stations
   c. Aid centers
4. Educate large groups in (if and when need seems imminent)
   a. Gas and gas mask usage, symptoms, treatment
   b. Control of hemorrhage
   c. First aid for
      (1) Fractures
      (2) Wounds
      (3) Burns
   d. Sanitation and water safety measures. Publish bulletins, circulars, and placards for above.
5. Set up the proper personnel for all above casualty stations.
6. Be prepared to train civilian resuscitation squads.
7. Be prepared to train decontamination squads.
8. Be prepared to train transfusion teams.
9. Be prepared to train fracture teams.
10. Be prepared to establish sera and chemotherapy stations.
11. List all trucks for ambulance usage.
12. List all private cars for messengers and supply usage.
13. Establish a sanitary committee to work with the city engineer's office in reestablishing sewer control and disposal of the dead (animals and humans).
14. Set up an executive control to coordinate all above with the civic authorities and with all trained groups, such as the Red Cross, civilian nurses, American Legion, Boy Scouts, etc., and aid the above program through their leaders.

15. Coordinate with state and national medical societies.

16. Coordinate with military requirements.

What the Individual Physician Can Do:

1. Keep up to date with foreign letters in the A. M. A. Journal, A. R. P. bulletins, war medicine, etc.

2. Review modern treatment of war wounds, gassed cases, neuroses, etc.

3. Type or have typed all people possible.

4. Give tetanus toxoid when possible.

5. Dissipate defeatism.

6. Respond promptly to requests from A. M. A. and State Society.

BRANDING TIME

The present very cooperative and effective relationship between the Army Medical Department and those great bodies representative of the civilian medical profession give assurance that during the present emergency medico-military affairs will be administered with the greatest possible degree of efficiency to the Army and to the civil population of our country.

JAMES C. MAGEE, Major General,
United States Army, The Surgeon General.

The mobilization and utilization of the medical profession have been placed in the hands of the profession itself through the establishment of the Procurement and Assignment Service for Physicians, Dentists and Veterinarians. I am sure we may rely, as always in the past, on the patriotism of the American medical profession.

PAUL V. McNUTT, Director,
Office of Defense Health and Welfare Service.

The Medical Department of the Navy expresses its deep appreciation to the medical profession of our country. Now that war is actually upon us, the Navy will need more medical officers. It has no fear regarding its needs being met; the past has shown wholehearted cooperation. This war must come to a successful conclusion. I am convinced that the medical profession will do its part to bring that about.

ROSS T. McINTIRE, Rear Admiral,
United States Navy, The Surgeon General.

The Army is short of doctors. The Navy needs doctors. Your Army and your Navy—if you please.

The time has come to say some things rather plainly. To begin with, the response of a certain group of younger physicians to the call of our country has not been entirely satisfactory. Vast excuses for not entering military service are offered. All of us have heard these songs—debts on a new house in the swank additions; a wife and a child to support; poor old papa or poor old mamma have come to live with us; can't keep up my insurance program on service pay; just re-equipped my office; just got started in practice and have too good a thing to lose; if Bill Jones (my competitor) goes, so will I; they only offer me a lieutenant's commission. You have heard more—you supply the chorus. But it all boils down in most cases to a simple answer—the unwillingness on the part of the individual to give up, that the whole might survive.

Now it is encouraging and heartening to see the oldsters come forward, those who went last time in 1916, those who have greater financial obligations and greater family responsibilities. Again they offer themselves and their all. Twice in their lives has their country called. Twice have they answered, shaming the spoiled youth of our profession. And spoiled are far too many of the precious younger generation of doctors. Those who entered a community fresh from school just a few years ago, gained quick acceptanee, built lucrative incomes in a very short time—of course they are spoiled in many cases. Money, money, money—the heady wine of gold and silver in bigger piles than their confreres! You've seen these men in nearly every community. Haven't you often wondered if they have lost touch with vital things?

It has been said that if America was attacked, patriotism would sweep away all else. Well, in too many young doctor's minds there is still a dollar qualification on that sentiment. You know young fellows who ought to be in the service of the United States of America, and are not. Don't you think that the time has come when everyone must stand and be counted?

The hour of decision faces the young doctors of America. It cannot be put off any longer. How do you choose to be branded, doctor?

PHYSICIANS AND THE WAR

This is the way the Ohio State Medical Journal expresses it:

> *Here is the situation which confronts the medical profession:* All male physicians under 45 years of age are subject to call for active military service under the Amended Selective Service Act. Undoubtedly, *physicians will not be drafted if the Procurement and Assignment Service is able to fill the needs of Army and Navy through volunteers.* Physicians who enroll with the Procurement and Assignment Service and are called for active military service will be commissioned as officers in the Army Medical Corps or Naval Medical Reserve Corps upon induction into the service. A physician in-

ducted into the service under the Selective Service Act probably would have to wait several months following induction before being commissioned.

Physicians over 45 years of age, except in special instances and where they may have some special qualification for active service, will be expected to enroll with the Procurement and Assignment Service for service on the home front. Such physicians would be retained in their present capacities if in the opinion of the Procurement and Assignment Service they are essential for the needs of the civilian population, in industrial practice, in a teaching capacity, etc., but they would be making themselves available if necessary for assignment to governmental agencies requiring medical personnel where shortage of medical personnel exists because younger men have entered the Army or Navy. Moreover, physicians over 45 years of age will have to take over more and more responsibilities in providing professional services for Selective Service Boards, public health agencies, civilian defense organizations, and similar home-front groups. Physicians under 45 who cannot meet Army and Navy physical requirements also will be expected to make their services available for such assignments.

Therefore, *every physician, regardless of age, will find as the war continues that his services in some capacity will be required in the winning of the war*, with those 45 years or under (especially those 36 or under), who can pass the physical requirements, serving with the Army or Navy and those over 45 years of age manning the essential services on the home front.

That is to the point, we'll all agree. And so that all may know just how much is the salary for the various grades, there is herewith appended an outline:

Grade	Annual Base Pay	ALLOWANCES Rental With Dependents	Rental Without Dependents	Subsistence (30 days) With Dependents	Subsistence (30 days) Without Dependents
Colonel	$4,000	$120	$80	$36	$18
Lieut. Col.	3,500	120	80	54	18
Major	3,000	100	60	54	18
Captain	2,400	80	60	36	18
1st Lieut.	2,000	60	40	36	18
Captain	$4,000	$120	$80	$36	$18
Commander	3,500	120	80	54	18
Lieut. Com.	3,000	100	60	54	18
Lieutenant	2,400	80	60	36	18
Lieutenant (Jr. Grade)	2,000	60	40	36	18

The annual base pay is increased at the rate of 5 per centum thereof for each three years of service up to 30 years.

Surgical Considerations in Jaundice

KARL A. MEYER, M. D.
Chicago, Illinois

THE successful therapy of jaundice must be based upon the simple classification of being either of the medical or surgical type. In the medical types of icterus, treatment resolves itself into those therapeutic supportive procedures which aim at both the protection of the liver parenchyma and at aiding in the restoration of already damaged tissue. In the treatment of surgical icterus not only are the same supportive measures indicated but also surgical intervention directed at removal of the underlying causative factor. Recognition of the type of jaundice is essential since failure to do so in the instance of surgical jaundice invariably leads to disastrous results.

The differentiation between medical or surgical jaundice is not always easy. Although studies of the pathogenetic factors of jaundice[1] have clarified our concepts of the various types of jaundice, nevertheless they have made the diagnosis of icterus more difficult. The time has passed when the jaundiced patient who had an alcoholic stool on one examination was considered an obstructive surgical case or when the jaundiced patient having urobilinogen in the urine was thought to be medical. Now we accept that icterus is not, within certain limits, an emergency symptom and that sufficient time for adequate laboratory determination may be taken safely. Ultimately if surgery is indicated,

From the Cook County Hospital, Department of Surgery, Northwestern University Medical School.

Read before Southwestern Medical Association, El Paso, November 20-22, 1941.

the patient having had simultaneous medical management for jaundice may then be a better risk than if he would have been operated upon soon after admission.

Not only is it imperative to diagnose the type of jaundice but also, in the instance of surgical jaundice, whether the obstruction is complete or incomplete: since the indication for surgical intervention and the type of procedure to be performed differs for each.

The surgeon may encounter the laboratory findings of both types of jaundice in patients supposedly surgically jaundiced. These may be:

(a) Icteric patients who have both bilirubin and urobilinogen in the urine.

(b) Icteric patients who have bilirubin but no urobilinogen in the urine.

The patients in group A showing both bile and urobilinogen in the urine, are the greater diagnostic problems. The jaundice may be due to a damage of the liver parenchyma (hepatitis) or to an incomplete obstruction of the common duct by a stone. In the former the treatment is purely medical; in the latter, removal of the stone is necessary. Textbooks of surgery describe typical signs and symptoms of gallbladder disease associated with choledocholithiasis, however, in practice most cases are typical and frequently require laboratory determinations to assist in reaching an accurate diagnosis.

DIAGNOSTIC AIDS

It should be stressed here that a careful history and physical examination plus repeated simple urinary tests will usually lead to a correct diagnosis of choledocholithiasis and that elaborate liver function tests are not indicated in most cases. We feel that observations of the fluctuations of bile and urobilinogen content in the urine and of the icterus index of blood are often of as great diagnostic value as the results of any liver function tests. However, there are a large group of these patients in whom a correct diagnosis is arrived at only after repeated liver function tests, and only after careful interpretation of the results of the study of the bile pigment metabolism.

From the study of a large number of jaundice patients in the Cook County Hospital we have concluded upon a number of points which have proven helpful in the differential diagnosis between icterus due to hepatitis and that due to incomplete obstruction (choledocholithiasis). These are common points frequently overlooked in the history, physical examination and laboratory workup. For example, a history of the ingestion of a drug, of alcoholic debauch, of dietary indiscretion or of a preceding infection most often points to a hepatitis rather than cholelithiasis as a cause for the jaundice. On the other hand, a history of previous gallbladder disease or previous attacks of jaundice are more indicative of an icterus due to common duct obstruction by a stone. The type of pain, such as severe and colicky requiring morphine for its relief, also points to a cholelithiasis rather than hepatitis. Loss of weight and pruritis occur more often in hepatitis while fever and chills are more frequent symptoms in jaundice due to obstruction by stones.

Hepatitis occurs more often in the younger individual who is thin or has history of some weight loss and who has a rather low normal blood pressure. In constrast to this the gallstone icterus afflicts mostly the older, stockier individual with a rather higher blood pressure. On physical findings the liver is usually enlarged in the hepatitis cases and this is often associated with a palpable spleen while both of these signs are uncommon in choledocholithiasis group. In the latter, the gallbladder may at times be felt if a hydrops in the gallbladder exists. Ascites and edema point to a hepatitis. In color the jaundice of hepatitis is usually reddish and that of cholelithiasis of a greenish hue.

In the hepatitis cases X-ray findings are essentially negative, while in those with cholelithiasis direct signs, such as calcific shadows, or indirect ones, such as extrinsic pressure on the duodenum, can be elicited. The icterus index level is usually high and fairly steady in hepatitis, but moderate and fluctuating in jaundice from gall-stones. A normal or decreased cholesterol level with cholesterol esters of less than 50%, a galactose excretion of over 3 gms., and a hippuric acid excretion of less than 3 gms., will point to a hepatitis rather than cholelithiasis. A slight increase in the phosphatase and non-protein nitrogen points to a hepatitis, while an increase in the diastase to cholelithiasis.

The jaundice patients in group B who have much bilirubin but no urobilinogen in the urine constitute the lesser diagnostic problem but at the same time offer therapeutic difficulty since they have a poorer prognosis. They may repre-

sent cases of common duct obstruction on a malignant basis or they may be patients with a hepatitis and an associated intrahepatic block. Even though the latter condition is not as common as the first, nevertheless, it occurs frequently enough to be considered in the differential diagnosis of obstructive jaundice. The surgeon who explores an obstructive jaundiced patient and finds a large liver, narrow common duct, and contracted gallbladder on the basis of intrahepatic block has added insult to injury and jeopardizes the recovery of that patient from his severe hepatitis. Therefore, the importance of differentiating between extrahepatic obstruction (requiring surgical intervention) and intrahepatic obstruction (medical) is obvious.

EXTRA- OR INTRA-HEPATIC OBSTRUCTION

In our clinic we have found the following clinical and laboratory data to be of aid in this differentiation. Extrahepatic obstruction is indicated by gastro-intestinal symptomatology—the most common pathology being carcinoma of stomach or colon through metastases to the periportal glands. In contrast carcinoma of common duct or head of pancreas may be asymptomatic except for the jaundice. A history of ingestion of drugs, alcohol, or of preceding infection should point more to an intrahepatic obstruction. In this connection it may be mentioned that frequently the jaundice in arsenical hepatitis is of the obstructive type[2]. Loss of weight, fever and pruritis are usually signs of extrahepatic obstruction.

The patient suffering from obstructive jaundice on an extrahepatic basis is usually of the older age group, emaciated and showing signs of hemorrhagic diathesis, in contrast to the younger and better nourished patient with obstructive jaundice on the basis of an intrahepatic block. In the latter, the liver is enlarged and smooth, the spleen is usually palpable, but the gallbladder is not felt. In the extrahepatic obstructive jaundice the liver is frequently nodular, the spleen is not felt and the gallbladder is markedly dilated and feels like a soft mass (Courvoisier's law). Ascites and edema is more common in the intrahepatic obstruction (especially cirrhoses), although ascites may occur in the extrahepatic obstructive jaundice. If it does it is on the basis of carcinomatosis of the periotoneum. The shade of the icterus is deep green to bronze in malignant obstruction (surgical), but a greenish hue in the intrahepatic block type of obstructive jaundice (medical).

In cases of obstructive jaundice from extrahepatic causes, the X-ray may reveal the malignant cause somewhere in or along the gastro-intestinal tract while in cases of intrahepatic block it is negative. Occasionally esophageal varices have been visualized in cases of intrahepatic block on a cirrhotic basis. The level of icterus index is high and horizontal in the extrahepatic obstruction but high and rising in the intrahepatic block. A total cholesterol level higher than normal and cholesterol esters above 50% point to the extrahepatic rather than intrahepatic block. A reversed albumin globulin ratio, a galactose excretion of more than 3 gms., a hippuric acid excertion of below 3 gm., and an increased non-protein nitrogen very strongly suggests a medical obstructive jaundice on an intrahepatic basis. Very high phosphatase and increased diastase values point more towards an extrahepatic obstruction.

As previously noted there are differences in the anticipated clinical course and the surgical procedures to be utilized for those jaundice patients with incomplete obstruction (i. e., stone) and those with complete obstruction (i. e., malignancy). Therefore it is necessary to briefly describe some of the features pointing to one or the other type.

The patients with surgical jaundice of the complete obstruction type are usually older, apathetic, frequently emaciated, very icteric—of almost bronze appearance—and showing signs of marked pruritis[3]. Those with incomplete obstruction are usually of middle age, well nourished, complaintive and less intensively jaundiced. Pain is usually more severe in those with incomplete obstruction. The icterus index is high and steady in the malignant, while it is moderately elevated and fluctuating in the benign obstruction (stone). An enlarged and at times nodular liver is mostly found in complete obstruction. In the latter, urobilinogen is constantly absent from the urine, while in the incomplete obstruction it is usually present in variable amounts, a fact which can be demonstrated especially well by doing quantitative urobilinogen determinations on 24-hour urine specimens. Watson[4] has especially stressed this latter test as differentiating between an ob-

structive jaundice due to a stone from that due to a malignant process.

OBSERVATION OF PATIENT

From the above, it is apparent that there are certain differential diagnostic points between hepatitis and incomplete obstruction on the one hand and between extrahepatic and intrahepatic obstructive jaundice on the other hand. Furthermore, there are also certain points differentiating between malignant (complete) and benign (incomplete) obstruction. However, these points have to be brought out not only during the initial history and examination of the patient but also searched for during the ensuing workup. Although in the majority of instances the diagnosis can be made within several days, some require a longer period of observation. The time taken in the careful diagnosis of icterus is well spent. It rewards the clinician and surgeon by decreasing morbidity and mortality in these patients. Except in rare instances of empyema of the gallbladder associated with jaundice should surgery be performed immediately. With only this exception the jaundiced patient can be safely worked up for a period of from 7 to 10 days or longer preparatory to surgical intervention.

During the time of "diagnostic" observation, the patient should be put on an appropriate hepatitis therapeutic regimen. This method of procedure is of twofold value. First, it will aid in the recovery of the actual hepatitis. Secondly, it will make the surgical patient a better operative risk. Moreover, once surgical intervention is decided upon, no valuable time need be lost in lengthy preparation of the patient, since he will require only the special pre-operative measures as administration of Vitamin K and blood transfusion. The importance of preparing jaundice patients carefully for surgery and of administering the proper anesthesia cannot be overstressed. A correct diagnosis of jaundice will be of no avail if we neglect to prepare this patient carefully before surgery or if we fail to consider his requirements both during and following the operation.

SUMMARY AND CONCLUSION

Jaundice is a symptom of a disease always requiring medical treatment and commonly additional surgical intervention. There are no "classical" signs or symptoms which might denote unfailingly those patients in which surgical intervention should be instituted. However, there are certain more or less characteristic features in each. The observation of these will aid in the decision between those cases requiring purely medical care or the additional surgical management in jaundice. An attempt has been made to present some of the data which we believe will help when considering surgery in cases of jaundice.

1825 West Harrison St.

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The Senile Heart

(Observations on Prognosis and Management)

LOUIS FAUGÉRES BISHOP, Jr., M. D.
New York, N. Y.

THE subject of gerontology[1] (which is a fussy way of talking about the study of growing old) seems to be of increasingly urgent medical interest. In fact, only recently a plan was formulated in which a class of Columbia University Medical School being faced with the increasing number of deaths within their own class, launched a program of study on themselves, with a view to increasing life expectancy. It is safe to say that any observations which are made in the study of the senescent heart are not without some interest.

Read before Harlow Brooks Memorial Navajo Clinical Conference (Sixth), Sage Memorial Hospital, Ganado, Arizona, August 25-27, 1941.

Author's Note: The subject and the title I have chosen for my talk are in a way a steal, a deliberate one, from a very famous book entitled, "The Senile Heart," which was written about fifty years ago by a certain Dr. Balfour, an English cardiologist.

Like many things in medicine, a re-reading of this book teaches us full well that, there is very little to add to what has been known about this subject for many, many years. The only reason for reviving it again is in the light of one's own experience.

The practicing physician engaged in the care of individuals suffering from heart disease can contribute a great deal of valuable data because he has a unique opportunity to observe the age process at close range.

The few observations on prognosis and management which I wish to bring to your attention today are based on an attempt to find out some facts as one observes these patients over a period of time.

It would appear there will be an increasing opportunity to study large numbers of persons with degenerative processes. We need more exact information concerning such individuals who provide fertile fields for biologic and medical research[2].

As has been frequently stated, the course of normal old age is modified by pathological changes, and these are largely the result of those diseases which fall within the category of the degenerative conditions, such as chronic arteriosclerotic heart disease.

During the past thirteen years, we have had the opportunity to study the aging process modified by various cardiovascular conditions, and this report is based upon a study of 184 individuals seen in private practice, who have reached the age of seventy years, or over, under our care. The age and sex incidence is shown in Table I. The duration of medical care of these 184 cases is shown in Table II. Nearly all of these patients were examined and cared for with heart disease as the most important underlying factor. The usual concept of the course of arteriosclerotic heart disease is, that it progresses slowly or rapidly to cardiac invalidism or to a vascular accident[3], such as a cerebral hemorrhage. On the contrary, we have found a number of these persons who live for many years, and who during this period lead active lives. We shall make no attempt to explain these extreme variations in the duration of arteriosclerotic heart disease from the pathological standpoint, but we do call attention to the clinical data we have at hand.

Table I
AGE INCIDENCE AND SEX INCIDENCE

Age	Male		Female	
	Alive	Dead	Alive	Dead
70- 71	15	15	7	6
72- 73	10	11	12	2
74- 75	10	4	4	3
76- 77	8	5	7	4
78- 79	5	7	3	1
80- 81	10	3	8	2
82- 83	4	4	2	2
84- 85		2		
86- 87		1		
88- 89	1			
90- 91		1	1	1
92- 93				1
94- 95				
96- 97			1	
166-167	1			
Totals	64	53	45	22

(Totals—Females: 67; Alive, 45; Dead, 22. Males: 117; Alive, 64; Dead, 53.)

Grand Total Living ..... 109 Males and Females
Grand Total Dead ..... 75 Males and Females
184

Table II
DURATION OF MEDICAL CARE

Years	Male		Female	
	Alive	Dead	Alive	Dead
0	3	10	3	3
1- 2	10	10	8	3
3- 4	8	5	6	5
5- 6	5	4		1
7- 8	3	4	5	2
9-10	10	8	8	
11-12	4	3	4	1
13-14	6	3	5	4
15-16	5	1	1	
17-18	2	1		
19-20	1		2	
21-22	4	1	2	
23-24	2			1
25-26	3			1
27-28				
29-30		1		
31-32			1	

There has been an increasing number of papers appearing in the literature confirming these clinical observations. Longevity following coronary infarction is a well-established fact. A recent case established a new record, that of a man who died at the age of 73 in the twenty-fifth year after his first attack of coronary thrombosis[4]. From our study we have seen survival to longevity following coronary infarction, and although in some studies[5] acute occlusion seems to be unusual in the late periods of life, it is not unusual in our group of patients. In several of these instances acute infarction occurred in individuals past 70, with several years of useful life following the episode.

RHEUMATIC HEART DISEASE

It would appear from recent reports[6] that rheumatic heart disease occurs more frequently past the age of 70 than is generally recognized. One of this series[7], previously reported as a single case report, was found to have chronic rheumatic heart disease with mitral stenosis at autopsy, and was observed for twenty-five years with auricular fibrillation. Concomitant coronary artery disease was an added cause of death. If it were possible, as has been suggested[8], to procure more autopsies in the aged, we might find rheumatic heart disease more common than is generally supposed. The systolic murmur, frequently noted in elderly patients, is usually considered as of arteriosclerotic etiology, or an accompaniment of hyper-

tension. The possibility that such a systolic murmur may be rheumatic is not considered. A number of patients in our series appear to have this possibility present clinically. Certainly the prognosis of rheumatic mitral stenosis is not always bad.

Now whereas longevity with rheumatic heart disease is probably more common than is ordinarily supposed, and together with the fact that autopsies are seldom done in aged individuals, rheumatic heart disease might frequently be overlooked. Examples of persons with known rheumatic heart disease who have survived to long life are fairly rare, at the present time. There is a case of rheumatic heart disease whom we followed and observed over a period of twenty-five years while this lady lived to the age of 80. She had auricular fibrillation which was part of her rheumatic heart disease, as it was clinically observed from 1914 to 1939.

In 1914 she was first seen by our office, at which time a polygraph tracing was taken which showed the absence of the characteristic A wave in the jugular pulse, and an irregular radial pulse characterized by auricular fibrillation. As you know, the polygram preceded the electrocardiogram as a graphic diagnostic method for determining the presence of auricular fibrillation.

In 1919 an electrocardiogram was taken which showed the presence of auricular fibrillation. This persisted through 1927, and on to the time she died in 1939, a period of twenty-five years.

The X-ray showed an unusually large rheumatic heart in a woman aged 80.

At autopsy the presence of long-standing rheumatic heart disease was revealed, and the clinical diagnosis of rheumatic heart disease in an aged person was confirmed.

Interestingly enough, she died of arteriosclerotic heart disease, and at autopsy a coronary thrombosis was noted.

In considering the aged individual with a cardiac murmur, one has to bear in mind the possibility that rheumatic heart disease may have been present for a long period of time, which emphasizes to us that the prognosis of rheumatic mitral stenosis is far from being always bad.

These observations on an individual with rheumatic heart disease and auricular fibrillation over a long period of time illustrate the importance of not ever giving a definite prognosis when confronted with the question of rheumatic heart disease in early life, because certainly at least in isolated examples the duration of life may be far longer than the usual conception.

We have published a number of reports [9, 10, 11, 12, 13] during the past years in which we have noted that the finding of a disturbance of function, even when there was a strong probability of survival to longevity. Severe disturbances of function, such as bundle branch block, which have been present in persons who attained the age of 70 years or over, have led us to the obvious conclusion that any electrocardiographic finding in itself is not necessarily indicative of severe heart disease, nor of a poor prognosis. From our present study it is clear that a wide variety of functional irregularities is noted electrocardiographically, and confirmed by clinical diagnosis.

Another observation of a somewhat different nature has been the realization that whereas the electrocardiogram has been very useful in interpreting the cardiac irregularities, and many times giving information as to the probability of damage to the heart muscle, the finding of severe damage as evidenced by the electrocardiogram does not necessarily preclude the possibility of survival to longevity. This is particularly well-illustrated with regard to the question of the electrocardiogram typical of bundle branch block.

BUNDLE BRANCH BLOCK

The usual conception that bundle branch block is invariably associated with a poor prognosis and with a severely damaged heart muscle, in a number of examples which we have observed in this study, has been completely upset. To illustrate: We have had under our care one individual for a period of eleven years with the finding of bundle branch block in the electrocardiogram, first of a transient nature, and then of a permanent nature. The following slides illustrate this point, and yet this man, during all this time, as far as his functional activity was concerned, carried on an active existence.

Our most unusual example of bundle branch block is in a woman who has been observed for a period of twenty-one years with bundle branch block and hypertension, with no particular change in her cardiac function resulting, and with the ability to carry on an active life. Such

an experience again emphasizes to us the importance of being very careful in not jumping to any prognostic conclusions from an electrocardiographic finding alone, and that the presence of bundle branch block is not any indication of a poor prognosis in itself, but is only part of the cardiovascular picture.

It has become evident in this study that a large number of cardiac irregularities can persist for many years in such elderly individuals.

AGING OF CARDIOVASCULAR SYSTEM

In a consideration of this group of individuals who have attained the age of 70, and whom we have observed or followed into this period of life, we have to be careful in evaluating what is known about the aging of the cardiovascular system apart from disease. This has been reviewed only lately. There are changes in function associated with the aging process: The pulse rate decreases slightly. There is an increase in the velocity of the aortic and radial pulses. A hypertension sometimes occurs in the aged. This hypertension we note not infrequently in our own experience, and in one sense, it is not a true arterial hypertension leading to cardiovascular disease. This type of benign systolic hypertension in the aged seems to be more common in women. It is probably safe to say that in the aged there is no characteristic electrocardiogram. The large number of abnormal electrocardiograms noted in our series is no indication of the electrocardiogram in old age. Besides the abnormalities noted in the electrocardiogram, we of course noted the findings described as part of the aging process: the increasing tendency to left axis deviation; the increase in the relative duration of systole; and a lessened frequency of sinus irregularity[14]. It is probable that in any group of patients over 70 a certain percentage would have changes indicating myocardial damage.

It would appear wiser to consider the aged heart patient as always having a disease process amenable to care and treatment, than ever to express the viewpoint that what is found is an unavoidable expression of growing old, because no one can answer this question.

In a consideration of survival to longevity with heart disease we have encountered in this study a number of examples of functional heart disease, as well as the so-called cardiac neurosis. Merely because longevity is present, a diagnosis such as the above must be kept in mind, or longevity might be halted by too much treatment. This is particularly true with regard to the cardiac irregularities for a number were encountered in this study, were perfectly compatible with longevity, and many times amenable to simple treatment.

The number of associated clinical conditions in this group is almost too numerous to mention. The tolerance of a number to operative procedures was remarkable, such as prostatic surgery and cataract operations. Cataract operations are often performed without difficulty on the aged, with recovery. Accidents are frequent, with recovery. (To cite the most striking instance, an old lady of 96 with coronary sclerosis, fractured her hip, had the pin operation, and is now up and active again.) Pneumonia occurs not infrequently, with recovery, and probably now in more instances since the advent of chemotherapy. Cerebral vascular disease was associated in not a few instances, but examples of pronounced mental disease associated with senile deterioration were extremely rare.

DATA ON PRIVATE CASES

This group of 184 patients, from a private practice devoted to the care of individuals with chronic cardiovascular disease, does not lend itself easily to statistical analysis, yet from our study some interesting data have been obtained which may be of some value in future more detailed investigations. Most of these patients had some presenting symptoms of a cardiovascular nature which required analysis. A few were examined with the consideration in mind that they might have to undergo some unusual strain, such as an operation. A number of these patients seek advice about cerebral symptoms which they believe to be essentially cardiac. The symptomatology of the aged has not received the systematic study that it deserves. The chief complaints noted in this group were: (1) pain or discomfort in chest (with or without radiation); (2) palpitation (various types of description); (3) cerebral symptoms: dizziness, fainting, headache, and (4) dyspnea.

The rarity of forms of heart disease other than coronary artery disease, with or without angina pectoris, or associated hypertension, is evident. We have noted no examples of luetic heart disease in this study of longevity. We have wondered, as mentioned, whether rheumatic heart disease is not more common than is generally believed.

With regard to the clinical picture of coronary artery disease in the aged, there are certainly a number who have a normal blood pressure, a heart of normal size, and no evidence of cardiac insufficiency. We have also observed a number of persons in whom painless infarction has resulted. Coronary infarction, even with survival, has already been mentioned. There were several elderly men with coronary sclerosis who came for examination because they did not want to give up their active outdoor life on account of heart disease. One was a golfer who hated to decrease his usual game of golf from 18 to 9 holes, and another a salmon fisherman who wanted to keep on with his fishing trips.

There is a tendency for the physician to overlook associated diseases in elderly patients who have attained longevity. One of this series at the age of 90 had a strangulated hernia, with recovery, which was only diagnosed with great difficulty on account of her condition. One acute appendix was also encountered.

The occupational group studied has been varied, but has disclosed a large number of physicians, which in a sense brings it very close to home.

A very large proportion of this group of patients have a history of longevity. In a consideration of this elderly group, we naturally became interested in what has been so many times illustrated: the question of longevity in the family history. Here our own observations were quite remarkable. Among these individuals we found 59 persons with two parents over 70, 63 with one parent over 70, and half as many with no parents over 70. (Of course, as you all know, there were many who did not know the age of their parents at time of death.) This observation on family history in this series is quite striking.

The economic status of this group of patients appeared to us to be unusually good. Possibly this may account for the fact that many were able to survive to old age with some form of heart disease, for they had good care.

HISTORY OF LONGEVITY

Patients With One Parent Over 70	63
Patients With Two Parents Over 70	59
Patients With No Parent Over 70	30
Age of Parents at Death Unknown	32
	184

HISTORY OF HEREDITARY HEART DISEASE
(Approximately 25%)

Known Heart or Circulatory Disease in 1 Parent	32
Known Heart or Circulatory Disease in Both Parents	8
Known Heart or Circulatory Disease Siblings	9
	49

TREATMENT

I realize it is very hard to add anything new, or even new thought, on the management of the elderly patient with heart disease. But I thought it would be interesting to you to hear a few points that have appeared significant in our care of elderly patients with heart disease. First, to keep people alive, no matter who does it—whether it be the heart specialist, the general practitioner, or the surgeon—it appears important to make a complete examination of the patient, together with intensive medical care—that this is the best way of keeping an individual in condition and prolonging life.

Everyone who practices medicine for any period of time prescribes certain favorite drugs in the management of his patients. And in the management of our cardiological practice we made a recent study of the drugs we use most frequently. While this list may not apply entirely to this group, it does for the most part. We include (1) mild sedation, (2) digitalis, (3) quinine, and (4) nitroglycerine.

No one has yet answered the question of the value of the continuous use of small doses of digitalis in elderly persons. Although there is a great deal of controversy concerning the tonic use of digitalis, it is believed that small doses of digitalis in many of these patients have been responsible for the prolongation of their lives. A moderate dose of digitalis never seems to have any cumulative action, or so rarely and slightly that we may continue it for a week or two without observation and without risk. Certainly, a grain, or a grain and a half, daily of the powdered leaf can be demonstrated safely over a long period of time without risk or cumulative action. This means that the object we have in view when using digitalis in a case of senile heart is not to remove dropsy, to slow the rate of pulsation, or to contrast the cardiac cavities, but by the accumulation of trifling advantages to tone up and strengthen the cardiac muscle by improving its metabolism. Gradually the heart acts with more vigor, the circulation improves in steadiness and force, any edema occupying the tissue space is removed, and thus the blood pressure is lowered and a considerable strain taken from the heart. For this purpose only moderate doses are required, doses which can be continued for many months without any risk of dangerous accumulation, and yet which have a decided effect in strengthening the heart,

improving the tone and elasticity of its muscle, and accumulating energy in its ganglia. Naturally the process is a slow one, and the benefit for a time is not very obvious to the recipient. I quote from Balfour ("The Senile Heart"):

"Some years ago a friend said to me, 'Doctor, your medicine is doing me no good.' I said, 'Of that, you must allow me to be the best judge.' 'But I feel no change in my symptoms, nor any action whatever from what you have given me.' I replied, 'I expected nothing else; you are too impatient. Were I to give you medicine in such a dose as to produce a sensible action in a few days, before long its action would be so unpleasant that you would either stop it yourself, or your ordinary medical attendant would order you to give it up. In a short time the seeming benefit would vanish, and you would abuse me for giving you medicine which did not agree with you, and which gave you no permanent relief. Now what I have given you will not speedily relieve you; but give it time, and it will make you well, and prolong your days in comfort. Two or three months after this you will say to your wife some morning, 'Do you know, my heart is not so troublesome as it was; I begin to think that I am improving;' and six or eight months after this you will come to me and say, 'Doctor, I was preaching last Sunday, and feel none the worse for it.' And so it fell out, my friend and his senile heart are nowadays, after the lapse of five years, still very good company to each other, which for many a day they were not. The senile heart owes its peculiar symptoms and progress to the difficulty which a weakened myocardium finds in maintaining the circulation in the face of the permanent obstacle presented by rigidity of the arterial walls."[17]

After digitalis, comes quinidine. We use quinidine in small dosage for the control of premature contractions. This is the dose of nitroglycerine we use, 1/225th of a grain.

The economic status of those in our group has allowed them the companion-nurse, an aid which appears so helpful in the care of aged people.

Many of our group have been able to benefit by climate-change, and to continue their outdoor life the year 'round—for the same reason.

Exercise and Rest—There is no doubt of the value of a balanced program of rest and exercise in the elderly patient with heart disease. There is no question that all are benefited by some degree of exercise, whether it be in the form of a mild game or whether it is the most simplified type of physiotherapy. Practically all patients with heart disease are benefited by some form of physiotherapy.

COMMENT

Are there any common factors when one considers the group as a whole? Obviously, one must be very guarded as to any conclusions of this character. Except for the fact that they are our own observations, one cannot add anything definitely new on this question. First, it would appear for the most part in our series that they have been able to lead relatively quiet lives, due to economic stability, the comfort of loving children, or careful guardianship. This could be illustrated in a very large number of individual examples. Second, the ancestral inheritance of longevity is usually present, probably in nearly all. Third, there is almost the X factor that permits a heart impaired, or unimpaired, by disease, the continuation of life beyond the 70th and up to the 90th year of life. Such a heart must me an organ of unusual quality.

The philosophy of the question of survival to longevity in heart disease can only be suggested from this study. Without making any psychiatric study among this group, all are keenly interested in living. There are very few misanthropes. Most of the men are of a very masculine type, and the women are correspondingly feminine.

As a conclusion to this study of patients who have survived to longevity with heart disease, we find the course and duration of cardiovascular disease is almost unpredictable. Surprising results may be achieved in the management of such an elderly group of individuals suffering from cardiovascular disease.[16]

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Osteopathia Condensans Disseminata

(Two Case Reports)

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OSTEOPATHIA condensans disseminata occurs so infrequently that the finding of new cases still justifies their being reported. Such reports may be of more value than mere academic interest. It is important that data should be accumulated so that by comparative study definite conclusions can be drawn concerning the origin and fundamental characteristics of the condition. The striking and unusual appearance is one that would not escape the average observer's eye, and therefore its exact rate of occurence must be extremely low when one realizes the number of roentgenograms of bones that are reviewed before chancing upon this anomaly. Two cases found incidentally during X-ray studies for some unrelated condition are herein reported.

DEFINITION

The condition is a rare, symptomless, congenital and often familial bone anomaly roentgenographically diagnosed and characterized by the presence of multiple areas of fairly dense spots representing regions of bony condensation. These areas vary in size and shape and occur for the most part in the epiphyses and metaphyses. Their arrangement is in the general direction of the principal trabeculae in flat bones and parallel to the long axis of the long bones.

SYNONYMS

This disorder has been designated in the literature by various names, but we feel that the one that should be adopted in referring to it should be the anatomico-pathologieal designation suggested by Lowrey and Booth[7], namely, osteopathia condensans disseminata. Other names found in the literature are spotted bones, osteopoikilosis, osteopoecilia, multiple enostosis, osteititis condensans generalisata, disseminated condensing osteopathy, osteoselerosis fragilis generalisata, and Albers-Schonberg's disease.

PATHOLOGY

The pathological changes, according to Schmorl[11], consist of areas of increased bone density, irregular in contour and with somewhat jagged borders, ranging from needle head size to pepper grain or larger. The saw plane surfaces of these lesions have the appearance of small osteomata. Microscopically, they are situated in the subcortical regions and consist of juxtaposed thickened trabeculae which merge gradually into the surrounding structure at their periphery. The islands of bone resemble spongiosa and not cortex. Both osteoblasts and osteoclasts are present.

INCIDENCE

Most cases have been reported between the ages of 15 and 60, but there has been mention of one case in a fetus of 4 months[13]. The anomaly has been reported twice as often in males. Though European reporters have accounted for the majority of cases, this does not mean that it is more prevalent in that continent, for the total number of cases reported, including the two here described is about 83, too few to be of any significance. All case reports mentioning race are in the white race. The condition is definitely familial in its occurrence[3, 4, 6, 8, 12, 14, 16]. Its presence at birth and before[13] tends to establish its congenital nature. It bears no particular relationship to occupation.

From the Roentgenological Service, William Beaumont General Hospital, El Paso, Texas.

CLINICAL COLLABORATION

The condition is asymptomatic and is discovered accidentally when roentgenograms are taken for other conditions, or it is found incidentally by investigators checking its familial and hereditary tendency. History of typhoid fever, endocrinopathies (diabetes, parathyroid disease, hypopituitarism, and hypothyroidism), achondroplasia, tuberculosis, congenital syphilis, osteomyelitis, and osteochondromata have all been coincidentally present, but no actual relationship has ever been established. Disseminated lenticular dermatofibrosis, a rather inconspicuous skin disease consisting of papular symmetrically distributed lesions over the upper part of the back and arms, lumbar region, buttocks, and thighs or the same color as the surrounding skin, has been reported five times as coexistent with the condition. Curth[2] considers the skin and bone conditions as manifestations of the same disease. Our second case exhibited lenticular dermatofibrosis, and he stated that his mother, a brother, and a sister also had the same skin lesions.

There are no associated laboratory findings. The serum calcium, phosphorus, and phospatase have all been reported normal.

DISTRIBUTION

The parts of the skeleton in which the condition has been most frequently reported are roughly in the order listed[7]: pelves, heads of femora, heads of humeri, metacarpals, phalanges and carpals, metatarsals, phalanges and tarsals, condyles of the femora, tuberosities of the tibiae, lower ends of the tibiae and tibulae, condyles of the humeri, upper ends of the radii and ulnae, scapulae, patellae, and least frequently and in fewest numbers in the clavicles, mandible, and cranium. The condition has been noted once in a sesamoid bone[7], and it has been found in the spinal column[3] and ribs[15]. The foci of condensation are usually seen towards the ends of bones in the epiphyses and metaphyses. Nichols and Shiflett[10] infer that the anomaly is related to endochondral bone formation because of its occurrence only in the bones formed from cartilage.

ROENTGENOGRAPHIC MANIFESTATIONS

Due to the numerous small islands of increased density, a speckled appearance is present in the involved bones. The shape of these islands as well as their size will vary. They may be round, oval, lenticular, or striated in appearance, and their size may be from about 2 mm. or less to about 5 cm. or more. They tend to lie parallel to the long axis of the long bones and to the course of the principal trabeculae in the flat bones. The lesions are present symmetrically in the body. Cases have been followed for one[1], four[9], seven[10], and fourteen[5] years with no changes occuring. However, Holly[4] followed four cases for five years and reported appearance, disappearance, enlargement, and coalescence of islands. The latter findings can be explained because histologically osteoblasts and osteoclasts are present[11].

REPORT OF CASES

Case 1 (figure 1): E. L., white female, age 37, wife of an army officer, reported at the hospital outpatient service on September 11, 1939, because of a painful right heel of four month's duration. She had a history of severe typhoid fever at age 9, mild generalized rheumatic pains at age of 16, and tonsillectomy at age 21. She had one female child, age 11, whose skeletal survey for osteopathia condensans disseminata was negative and who had no history of typhoid.

Figure 1. Roentgenogram of knee showing involvement with both lenticular and striate types of lesions.

Figure 2. Note that the areas of condensation are parallel to the long axis of the bones or to the principal trabeculae.

The remainder of the patient's history was essentially negative. Except for some local tenderness over the right heel, the physical examination was negative. There was no evidence of disseminated lenticular dermatofibrosis. Coincident to the X-ray study of the right heel, the condition of osteopathia condensans disseminata was found. Complete skeletal survey was made and revealed the presence of the condition in all the bones of the body except the vertebrae, ribs, skull, clavicle, sternum, and patellae.

Case 2 (figure 2): A. V. Y., a white soldier, age 19, entered William Beaumont General Hospital on January 11, 1941, with the complaint of pain and swelling of his legs and ankles. He stated that these symptoms were brought on by prolonged walking and standing. The marching and strain of military life aggravated his symptoms. He had a history of mumps, measles, and pertussis in childhood. He never had typhoid fever, and he denied the venereal diseases. In 1937 he was injured in an automobile accident and received a fractured left clavicle, fractured ribs, and a fractured right elbow. All healed without deformity, but after this accident he was confined to bed for 8 months, and following this he had to wear a back corset for 2 years. He stated that he has had the skin lesions noted on physical examination as long as he can remember and that a brother, a sister, and his mother have similar lesions. Before coming into the army he was a mechanic. His mother and father are living and well, and 2 brothers and 2 sisters are living and well. The other members of his family were not available for X-ray studies. The physical examination was entirely negative except for the following noted points: There was some roughening of the first heart sound at the apex. The transverse arches of both feet were somewhat flattened. Discrete small papules of the same color as the surrounding skin were present in groups on the extensor surface of the right elbow and on the medial aspect of the flexor surface of the right leg. Routine urinalysis was essentially normal. Blood Kahn and Wassermann tests were negative. Serum calcium and phosphorous were normal. Osteopathia condensans disseminata was discovered coincident to X-ray studies for pes planus. Complete skeletal survey recorded the condition in all the bones except the vertebrae, ribs, skull, clavicles, sternum and patellae.

COMMENT

Two additional cases of osteopathia condensans disseminata are reported along with a brief review of the literature. Both cases tend to emphasize that the condition per se is unattended by symptoms. Continued case reporting and studies are indicated when the condition is discovered so as to clearly establish its relationship or connection to pathological manifestations in bone.

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Effect of Electromagnetic Radiations on Flocculation Tests for Syphilis

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VI THE EFFECT OF ULTRAVIOLET WAVES ON CHANGING THE SPECIFIC ROTATION OF SERO POSITIVE AND SERO NEGATIVE HUMAN AND ANIMAL SERA.

THIS is the sixth of a series of papers dealing with the effects of electromagnetic radiation on the various flocculation tests for syphilis. In the earlier papers of the series the effects of ultraviolet rays and diathermy on human and animal sera were discussed[1, 2, 3, 4, 5]. This paper will deal with the difference in the rotation of light caused by the presence of the reactive substance responsible for the production of positive flocculation tests in sera and the changes brought about by ultraviolet light irradiation.

EXPERIMENTAL

All sera, human and animal, were heated in an electrically controlled water bath at 36°C for a period of 30 minutes, removed, allowed to come to room temperature and examined by the Kline, Mazzini and Leiboff tests. The results obtained constituted the control reaction. Strict care was observed in following the author's serology directions for all tests. The inactivated sera were then transferred to a quarter decimeter polariscope tube and the degree of rotation determined using a sodium light.

After the control reaction and degree of rotation had been determined the sera were placed in small dishes and irradiated for 60 minutes with a quartz lamp using the same method as described in an earlier paper[1]. Kline, Mazzini and Leiboff tests were then run on this irradiated sera and also the degree of rotation determined. The sera were then placed in small test tubes, corked, and stored in the ice box. After 24 hours the sera were warmed in a 56° water bath for 10 minutes and their Kline, Mazzini and Leiboff reaction and their degree of polarization of light determined. All the values for the degree of polarization are given as the value of a tube 1 decimeter in length, the values having been calculated by multiplying the observed reading by 4.

RESULTS

The average, maximum and minimum number of degree of rotation of light for positive and negative human, horse and cow sera are given in Table I. All sera after irradiation for 60 minutes became seronegative regardless of the control reaction. After holding for 24 hours at ice box temperature, the sera returned to their original reaction.

Table I
Specific Rotation on Various Sera
One-decimeter tubes using pure sodium light

Sera	Total Examined	Control Reaction	Rotation of Untreated Sera	Rotation of Irradiated **Sera	Rotation of Irradiated Sera Held 24 Hours
Human	10	Pos.	Av. —5.3148°	Av. —4.064°	Av. —5.3148°
			Max. —5.9600°	Max. —4.200°	Max. —5.9600°
			Min. —4.8920°	Min. —4.000°	Min. —4.8920°
Human	30	Neg.	Av. —4.0012°	Av. —4.0000°	Av. —4.0012°
			Max. —4.0020°	Max. —4.0000°	Max. —4.0020°
			Min. —4.0000°	Min. —4.0000°	Min. —4.0000°
Cow*	50	Pos.	Av. —2.0600°	Av. —2.000°	Av. —2.0600°
			Max. —2.0600°	Max. —2.000°	Max. —2.0600°
			Min. —2.0600°	Min. —2.000°	Min. —2.0600°
Horse*		Pos.	Av. —3.8800°	Av. —3.8000°	Av. —3.8800°
			Max. —3.8800°	Max. —3.8000°	Max. —3.8800°
			Min. —3.8800°	Min. —3.8000°	Min. —3.8800°

*All cow and horse sera examined gave positive serological tests for syphilis. No negative sera were encountered in this series.

**All sera irradiated 60 minutes became seronegative to all tests.

In order to determine the accuracy with which the polariscope could be read, twenty sera were pooled without regard to serological reaction. The degree of rotation of light was determined on fifty different portions of this pooled sera. The values obtained varied from —4.000 to —4.025. This would indicate that the sera would give a negative results to the three tests used.

Sugar determination were made on a series of ten positive and ten negative sera using the

method of Shaffer and Hartman. The sera were then irradiated and sugar again determined. The results obtained, along with the serological reaction and degree of rotation are given in Table II.

Table II

A Comparison of Serological Reaction, Plasma Sugar and Specific Rotation of Irradiated and Non-irradiated Sera

No.	Control Reaction	Sera Mg. Sugar per 100 cc Serum	Degrees Rotation	Reaction	Irradiated Mg. Sugar per 100 cc Serum	Sera (1 hr. exp.) Rotation
1	2+	68	—5.9600	Neg.	68	—4.0000
2	3	75	—5.3148	Neg.	72	—4.0000
3	2	70	—5.4800	Neg.	70	—4.0200
4	3	70	—5.3600	Neg.	70	—4.0200
5	3	72	—5.4500	Neg.	70	—4.0000
6	2	68	—5.4500	Neg.	68	—4.0000
7	2	68	—5.9000	Neg.	68	—4.0000
8	3	70	—5.6300	Neg.	68	—4.0200
9	3	68	—5.5200	Neg.	68	—4.0200
10	4	72	—5.1200	Neg.	70	—4.0000
11	Neg.	68	—4.2000	Neg.	68	—4.0000
12	Neg.	65	—4.2020	Neg.	68	—4.0000
13	Neg.	75	—4.3050	Neg.	70	—4.0000
14	Neg.	68	—4.3000	Neg.	68	—4.0000
15	Neg.	68	—4.0000	Neg.	68	—4.0000
16	Neg.	65	—4.3000	Neg.	68	—4.0000
17	Neg.	65	—4.2500	Neg.	65	—4.0000
18	Neg.	70	—4.3000	Neg.	70	—4.0000
19	Neg.	68	—4.3000	Neg.	68	—4.0000
20	Neg.	72	—4.3200	Neg.	70	—4.0000

DISCUSSION

An examination of Table I will show a difference in the degree of rotation of light caused by the positive human sera and that caused by negative sera to be an average of —1.3136° in the control or non-irradiated sera. In the irradiated sera this difference becomes only —0.064°. There was a decrease in rotation caused by irradiating with ultraviolet light from an average value of —5.3148° to —4.064° in the positive sera and only —4.0012° to —4.000° in the negative group. This would tend to indicate that the reaetive substance eausing the rotation of light was altered in some way by the ultraviolet rays.

The values obtained in the human group were somewhat greater than those obtained by Rondoni[6], but in general agreed fairly well Rondoni dilnted the sera 1:3 with normal saline to decrease the color effect of the sera. In a series of 30 sera he obtained the results shown in Table III.

A comparison of the figures obtained by Rondoni in Table III with those obtained in Table I will show that the positive sera gave 20-30 per cent more rotation than the negative group. In his article, Rondoni did not state his source of light; therefore, if he was not using a pure sodium D line the difference in degree of rotation may be explained. Neither did he state the length of the tube he used.

It will be noted that in Table I the degrees

Table III

No.	Wassermann Reaction	Clinical Diagnosis	Observed Polarity
1	Positive	Syphilis	—1.230
2	Positive	Progressive paralysis	—0.960
3	Positive	Progressive paralysis	—1.035
4	Untreated Positive	Secondary lues	—0.9150
5	Positive	Aerotetic lues	—0.870
6	Positive	Syphilis	—0.1005
7	Positive	Syphilis	—0.945
8	Positive	Syphilitic brain progressive	—0.975
9	Positive	Aerotic lues	—0.960
10	Positive	Aerotic lues	—0.960
11	Positive	Questionable	—1.200
12	Positive	Lues	—0.020
13	Positive	Lues	—0.930
14	Positive	Lues	—1.110
15	Positive	Abdominal typhoid	—1.810
16	Negative	Arthritis	—0.660
17	Negative	Duodenal ulcer	—0.930
18	Negative	Typhoid	—0.810
19	Negative	Malaria	—0.840
20	Negative	Rheumatic fever	—0.780
21	Negative	Rheumatic fever	—0.825
22	Negative	Solerosis of side muscles	—0.810
23	Negative	Optical neuritis	—0.765
24	Negative	Hysteria	—0.810
25	Negatvie	Questionable	—0.675
26	Negative	Suspicious of cancer	—0.675
27	Negative	Questionable	—0.990
28	Negative	Questionable	—0.750
29	Negative	Normal	—0.840
30	Negative	Melitensis	—0.275

of rotation brought about by eow and horse sera are considerably less than those produced by human sera. All animal sera examined gave strongly positive serological tests (3 plus and 4 plus). No negative sera were encountered in this group of 250 sera (50 cows and 200 horses); therefore the difference, if any, between positive and normally negative animal sera could not appear to be significant, being only 0.0800°. traviolet did cause a deerease in rotation it did not appear to be significant, being only 0.800°. This small decrease in rotation may be explained on the grounds that the reactive substance in animal sera alone has been affected by the irradiation while in the case of the human sera the change in rotation might well be the result of the change in optical aetivity of several constituents of the sera.

Rondoni[6] in his article brings out the fact that various German workers have shown that different types of degenerative diseases tend to inerease the degree of rotation of light. He names pneumonia, tuberculosis, p e r n i c i o u s anemia and glanders as outstanding examples. Likewise, he states that the value obtained on a newborn child will be greater than that of the mother.

The exact eause of the change in rotation of light is not clear. Rondoni[6] believes that it is due to the albumen adsorbing on their surface the various decomposition produets caused by various diseases, thereby causing a change in the specific rotation. This explanation does not seem probable since we may irradiate positive

sera for a period of 60 minutes and decrease the titre and the degree of rotation. After holding this same sera for a period of 24 hours it regains its optical activity plus its reactivity with the various flocculation tests for syphilis. It would appear that in syphilitic sera there is some optically active substance which has been increased due to the diseased condition, which upon irradiation becomes less active and thereby reduces the rotation and reactivity with the luetic tests. In the negative group of the human sera the rotation of light was not significantly changed by irradiation nor were its serological properties. Therefore it would appear that the fraction of the sera which was affected by the ultraviolet light was responsible for the floccules in the luetic tests.

CONCLUSIONS

1. Positive human syphilitic sera gave an average specific rotation of —5.3148°, while the normal negative group of human sera rotate light on an average of —4.0012°.

2. Cow sera rotate light on an average of —2.0600°.

3. Horse sera rotate light on an average of —3.8800°.

4. Irradiation with a quartz ultraviolet ray light significantly decreases the rotation of positive sera and does not significantly decrease the rotation of negative sera.

Breazeale Research Laboratory.

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Thrombocytopenia Purpura Following Administration of Sulfathiazole

(Case Report)

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Albuquerque, New Mexico

THE following report is the study of a case of thrombocytopenia purpura, with recovery, that developed following sulfathiazole medication. The literature on the toxic manifestations of the sulfonamides is replete. Flippin[1] states, that neutropenia occurs in 1 to 2 per cent of cases receiving the sulfonamides. Sulfathiazole is the least toxic of the group and blood dyserasias are very rare or not seen following its administration.

CASE REPORT

The patient, D. T., aged 16, white male, was admitted to St. Joseph's Hospital on the evening of June 17, because of dizziness, bleeding from his gums, throat and nose of one day duration.

There was no family history of allergy, rheumatic fever, hemophilia, or heart disease. He had the usual diseases of childhood, but otherwise his past history was negative.

His present illness dated back to April 10, 1941, at which time he contracted a cold, which was accompanied by fever, catarrhal symptoms of the upper respiratory tract with a purulohemorrhagic discharge from his nose. When first seen on April 15, 1941, he appeared very toxic, his temperature was 102, pulse 110. Physical examination was essentially negative, except that the teeth and gums were in poor condition, throat was red and swollen. The mucous membranes of the nose were swollen, congested, covered with a thick sero-hemorrhagic and purulent discharge. Sulfathiazole was prescribed, and over a period of one week, 30 tablets or 13.9 grams of the drug were given. About the fifth day of treatment, he developed a slight rash over his face and trunk, but at the end of ten days he had made an uneventful recovery. On June 16, he had a sore throat; so his mother gave him 1 gm. of sulfathiazole at bedtime. He awakened in the morning bleeding from his gums and nose, and he noted spots over his legs.

Physical examination upon entrance to the hospital, revealed a well developed, very pale boy with normal temperature and pulse. Over the chest and arms there was an occasional petechiae in the skin, while over the lower extremities from the knees down, there was a macular hemorrhagic rash, which coalesced into a diffuse

Chart of Blood Picture and Studies

Date	RBC	Hbg. mgs.	WBC	Diff Poly	Lymphocytes	Total Count	Baso	Eos.	Myel	Juv.	Stab	Seg.	Mono	Bleeding Time	Clotting Time	Coagulation	Capillary Resistance	Platelets
6-17-41	4.7	12.1	6500											35				0
6-18-41	4.7	12	6000											20	6			42,000
6-19-41	4.9	11.8	6000													6.8		53,000
6-20-41	4.3	10.9	5000											17			4	50,520
6-22-41	4.2	10.9	3250	72%	25%	100	0	2	0	3	6	63	9					51,600
6-23-41	4.2	10.9	5900	64%	34%	100	1	1	0	2	19	43	0			9	5	
6-25-41	4.0	10.9	5400	37%	60%	100	0	2	0	0	12	25	1			9		53,000
6-26-41	4.3	10.9	7400	22%	77%	100	0	1	0	2	9	11	0					76,000
6-28-41	3.3	10.0	6500	63%	36%	100	0	1	2	2	14	45	0					
6-29-41	3.8	10.2	5500	55%	38%	100	1	5	0	0	16	39	1					80,000
																		Discharged
7- 4-41	4.2	10.9	5000	67%	32%	100	0	0	0	1	7	59	1					80,000
8- 9-41	5.3	16.8	10700	57%	39%	100	0	4	0	1	5	51	0	4	8			100,000

erythema and was of a deep purple hue. Hemorrhagic areas were noted on the gums and posterior pharyngeal wall. Two non-retractile clots, 1 cm. in size, were on the hard palate. The chest was resonant throughout, breath sounds were broncho-vesicular, and no rales were heard. Heart was normal. Blood pressure 100/80. There was no abdominal regidity or tenderness. Liver, kidneys and spleen were not palpable. There was no adenopathy. Reflexes revealed no abnormalities. Laboratory findings: Red blood cells, 4,700,000; Hbg. 12.1 gms.; white blood cells, 6,500; urine negative. Blood Wassermann negative. Bleeding time 35 minutes. Blood platelets were absent. Clinical course. Five days after his entrance into the hospital, his temperature rose from normal to 103, pulse 120, respirations 20. His temperature returned to normal by lysis, after four days. He was given symptomatic treatment, a high caloric diet and three capsules of vitamin K daily. At the end of two weeks the bleeding stopped, the purpura had completely disappeared, and the blood picture was normal. He was discharged from the hospital July 4.

COMMENT

The mode of action in drug idiosynerasy is not well understood. Markel[2] states, that since the sulfonamides are a benzene derivative, the drug may possess some of the toxic characteristics of benzene. Kern[3] has reported cases of benzene poisoning with hemorrhagic tendencies. Shonberg[4] and Markel have each reported a case of purpura hemorrhagica following the administration of sulfanilamide, and Hoffman[5] one case due to sulfapyridine. No cases so far have been reported following the administration of sulfathiazole. In the case we have presented, the thrombocytopenia purpura was due to the patient's idiosyncrasy to sulfathiazole. He gave no history of hemorrhagic tendencies in his family or himself. Over a period of five days he was given 13.9 grams of sulfathiazole. At that time he developed a slight rash. Twenty days after the first course of sulfathiazole, he was given one gram of the drug and developed, purpuric symptoms, within twelve hours. A thrombocytopenia existed, as no platelets were present. His bleeding time was prolonged, the coagulation time was within normal limits, and there was no clot retactability.

With the field of administration for sulfathiazole so widely increased, it is well worth to be aware of the fact that it is not a harmless drug. Any of the milder toxic manifestations as erythema, dizziness, nausea and jaundice are warnings of a possible drug idiosynerasy. These manifestations, however, do not warrant discontinuation of the drug in severe infectious cases. To this group of patients, sulfathiazole must be administered with great caution. Daily studies of the blood picture are important, as special changes may give the clue of an impending blood dyserasia.

SUMMARY

A case of thrombocytopenia that developed following the administration of sulfathiazole, with the clinical course and blood studies is reported.

Southwestern Presbyterian Sanatorium.

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AMERICA AT WAR

EQUIPMENT AND OPERATION OF EMERGENCY MEDICAL FIELD UNITS MEDICAL DIVISION—BULLETIN NO. 2

Prepared by Office of Civilian Defense
Washington, D. C.

The Field Casualty Service

As recommended in Bulletin No. 1 of the Medical Division, emergency medical field units should be established in all approved general hospitals, both voluntary and governmental, located in coastal states and in industrial centers of the interior. The plan of organization and size of the emergency field units for hospitals of various sizes and the total number of field units recommended on a population basis are outlined in Bulletin No. 1.

The emergency medical field units of a hospital are composed of two or more squads, so that at least one squad is on first call during each twelve-hour period of the day . In larger hospitals reserve squads should be available at the call of the control center in the event that multiple sites of disaster should require the manning of additional casualty stations and first aid posts. All members of emergency medical field units should be systematically drilled in first aid procedures.

Equipment for Emergency Medical Field Units

The following lists include only the minimum medical and surgical equipment required for emergency treatment at the site of a disaster. Provision for other than essential minor surgery has purposely been omitted.

The equipment for each physician and his team is to be carried in two portable boxes provided with handles. These two boxes should be of the same size (15 by 20 by 8 inches) and may be packed conveniently in the ambulance or other vehicle transporting the emergency squad to the site of the casualty station. The provision in separate containers of working supplies for each physician will permit the squad of a casualty station to split off one or more teams of physicians and assistants who can be dispatched with their equipment to set up advanced first aid posts.

Casualty Stations

The casualty station will occupy a predetermined site such as the clinic of a hospital, health department or voluntary agency, a health center or substation, a school basement or other suitable place which provides shelter, protection and accessibility. It should be located if possible on a side street so that ambulances will not block main thoroughfares. The sites selected for casualty stations should be numbered and indicated on a spot map of the community. The casualty station will:

1. Serve as a center from which medical teams may be sent closer to the disaster if required.
2. Care for the less severely injured and for persons suffering from shock and hysteria until they may be permitted to return to their homes or to temporary shelters. This will protect hospitals from the burden of minor casualties which would interfere with the work of caring for the seriously injured.
3. Keep a record of all persons treated at the station and see that all casualties transferred to a hospital are tagged.

The casualty station is to be supplied with stretchers, collapsible cots and blankets from medical depots located at sites from which the transportation of emergency medical service is derived. Eight stretchers, twenty-four cots and sixty-four blankets should be available per 10,000 of population for issue to casualty station, as the need arises: Where kitchen tables are not available at the location of a casualty station, two pairs of saw horses, each 36 inches high, may be required, on which stretchers may be placed to serve as dressing tables. Stretcher teams and rescue squads will obtain their stretchers at casualty stations.

First Aid Posts

The first aid post will occupy a temporary location usually close to the scene of disaster and will:

1. Care for the more severely injured, preparatory to their transfer to a hospital. No surgery other than emergency first aid is contemplated.
2. Classify the casualties so as to expedite the transfer of the seriously injured to a hospital—most important responsibility which requires surgical judgment.
3. Direct the stream of ambulatory and of slightly injured stretcher patients and those suffering from shock or hysteria to a casualty station.
4. Tag all casualties immediately. Maintain entries in the casualty record book of all persons

receiving first aid. (A nurse or nurse's aide is to be responsible for these records.)

Equipment for a First Aid Post

List 1 indicates the medical and surgical equipment for each physician of an emergency medical field unit and his team of nurse and orderly or nurses' aide. One or more such teams man a first aid post. First aid posts are subsidiary to a casualty station which will furnish replacements of drugs and surgical supplies.

List 1—Equipment for a First Aid Post

(Working supply for one physician's team)

Item	No.
Cases, carrying, waterproof (15 by 20 by 8 inches	2
Scissors, surgical, Mayo 5½ inch curved	1
Scissors, surgical, Mayo 5½ inch straight	1
Scissors, bandage, angular, 7½ inch	2
Forceps, hemostatic, Rochester, curved, 6½ inch	6
Forceps, hemostatic, Rochester, straight, 5½ inch	6
Forceps, tissue, spring, 5½ inch	1
Forceps, tissue, spring, mouse-tooth, 5½ inch	1
Forceps, tongue holding, 7 inch	1
Tube, breathing (airway) hard rubber or metal (adult)	1
Tube, breathing (airway) hard rubber or metal (child	1
Retractor, tissue, double end nested 9 and 10 inch Army type, pair	1
Syringe, hypodermic, Luer, 2 cc.	2
Needles, hypodermic, 25 gage, ½ inch	12
Needles, hypodermic, 19 gage, 1½ inch	6
Tubes, constriction (length 3 inches)	12
Stoppers for constriction tubes	12
Handles, Bard Parker, No. 3	2
Blades, Bark Parker, No. 10, package of 6	1
Drugs	
Morphine sulfate syrettes, 0.015 Gm.	20
Morphine sulfate syrettes, 0.030 Gm.	10
Sulfathiazole, powder, vials, 5 Gm.	12
Ointment, ophthalmic, boric acid, 5% (tube, 4 Gm.)	1
Jelly, tannic acid, tube, 45 Gm.	2
Soap, hand, bar	2
Alcohol, denatured, ethyl, bottle, 500 cc.	1
Ammonia, aromatic spirit, bottle, 60 cc.	1
Sodium bicarbonate	½ lb.
Phenobarbital tablet, 0.30 Gm.	100
Caffeine sodium benzoate, ampules, 0.5 Gm.	12
Epinephrine hydrochloride, 1 1,000	20 cc.
Dressings, Bandages and so on	
Compress, gauze, 4 by 4 inches	100
Compress, gauze, 2 by 2 inches	200
Pad, surgical, 8 by 10 inches (Dakin)	25
Bandage, gauze, 2 inch	24
Bandage, muslin, 4 inch	24
Bandage, triangular, muslin, 50 by 36 by 36 inches	24
Cotton, absorbent, roll, sterile	2 oz.
Cotton batting, roll	1 lb.
Plaster, adhesive, 2 inch, 10 yards, roll	2
Pins, safety, large	48
Splints, basswood	12
Depressors, tongue, wood	24
Applicators, wood	25
Sheeting, rubber (45 by 72 inches	1
Basins, white enamel, 9 by 6 by 1⅞ inches (one with cover)	2
Stove, gasoline (Coleman)	1
Pencil, indelible	1
Pencil, dermatographic (red)	1
Pads, heating, chemical	4
Pads, heating, refills, chemical	4
Gloves, surgeon's, rubber, size 8 (latex	2
Flashlight (two cell)	1
Lantern, electric, dry cell type	1
Battery, dry cell, for lantern, No. 6	4
Battery, dry cell, for flashlight, No. 950	4
Cups, paper	25
Brush, nail	1
Towels, hand	12
Matches, safety, box	3
Tourniquet, field, web	3
Bag, laundry, small	1
Tags, identification, book of 20	6
Casualty Record Book	1
Suture Material	
Catgut, plain No. 1, tubes, boilable	6
Silk, dermal, medium, 40 inch strand, package	6
Needles, suture, catgut, size 1, ½ circle, trocar point, Mayo	6
Needles, cutting edge, straight	6

Equipment for a Casualty Station

List 2 indicates the equipment for a casualty station. It contains bulky articles, such as traction splints, which could not be included in the equipment of the first aid post without impairing its mobility. These articles will be issued from the casualty station to the first aid posts as the need arises. Casualty stations are also stocked with dressings, bandages and drugs from which the supplies of the first aid posts may be replenished. Blood, plasma and biologic products such as tetanus antitoxin or toxoid may be obtained by casualty stations from the parent hospital as needed. They are, therefore, omitted from this list.

List 2—Equipment for a Casualty Station

(Emergency squad of two or four physicians, nurses and nursing auxiliaries)

Item	No.
Trunk, Army type (30 by 16½ by 12 inches)	1
Pins, safety, large	100
Splint, basswood	30
Depressors, tongue, wood	100
Applicators, wood	50
Sheeting, rubber (45 by 72 inches)	2
Basins, white enamel, 9 by 6 by 1⅞ inches (2 with cover)	4
Gag, mouth	1
Stove, gasoline (Coleman)	2
Catheter, urethral, rubber, F. 14	4
Tags, identification (books of 20)	6
Pencil, indelible	4
Pencil, dermatographic (red)	4
Peds, heating, chemical	8
Refills, pads, heating, chemical	8
Gloves, surgeon's, rubber, size 8 (latex)	4
Cups, paper	50
Brush, nail	2
Matches, safety, package of 12 boxes	1
Towels, hand	24
Lantern, electric, dry cell	2
Batteries, dry cell, lantern, No. 6	12
Tourniquet, field web	6
Bag, laundry, small	2
Splint, arm, hinge, Thomas	4
Splint, leg, half-ring, Army type	4
Splint, Thomas, leg, child	2
Splint, arm, Murray Jones, child	2
Catgut, plain No. 1, tubes, boilable	12
Silk, dermal medium 40 inch strand, package of 12	1
Needles, suture, size No. 1, ½ circle, trocar point, Mayo	12
Needles, cutting edge, straight	12
Razor, safety	1
Blades, safety razor	12
Drugs	
Morphine sulfate syrettes, 0.015 Gm.	40
Morphine sulfate syrettes, 0.030 Gm.	20
Sulfathiazole, powder, vials, 5 Gm.	24
Ointment, boric acid, ophthalmic, 5% tube, 4 Gm.	2
Jelly, tannic acid, tube, 45 Gm.	4
Alcohol, denatured, ethyl, 70%	1 qt.
Ammonia, aromatic spirit, bottle, 60 cc.	1
Caffeine sodium benzoate, 0.5 Gm. ampules	24
Phenobarbital, 0.03 Gm.	200
Procaine hydrochloride tablets, 0.18 Gm.	100
Soap, hand, bar	4
Sodium bicarbonate	1 lb.
Sodium chloride compressed tablets, 1 Gm.	100
Dressings, Bandages and so on	
Compress, gauze, 4 by 4 inches	200
Compress, gauze, 2 by 2 inches	400
Pad, surgical, 8 by 10 inches (Dakin)	50
Bandage, muslin, 4 inch	48
Bandage, gauze, 2 inch	48
Bandage, triangular muslin (50 by 36 by 36 inches)	48
Cotton, absorbent, roll	1 lb.
Cotton batting, roll	2 lb.
Plaster, adhesive, 2 inch, 10 yards	4

Identification Tags

The identification tag is to be filled out by the first member of a rescue squad, stretcher

team of first aid post to reach the casualty. This must be done immediately, because the patient may lose consciousness. All the required information should be recorded. Information concerning the name and address of the injured and of the "person to be notified" are important to those anxious to locate the injured person. The place where an unconscious patient was found should be noted, since this may be the only clue to his identity.

It is important to record administration of narcotics or application of a tourniquet. Further treatment given at the first aid post or casualty station should be indicated on the back of the identification tag. Warnings concerning possible internal injury, hemorrhage or skull fracture should also be noted on the back of the tag to facilitate sorting of patients on arrival at the hospital.

The tag should be affixed securely to the patient and not to clothing which might later be removed.

A set of symbols to indicate the necessity for priority treatment has been devised to facilitate sorting of patients at the hospital. These symbols should be drawn prominently on the forehead of the patient at the first aid post or casualty station with a red skin pencil:

U	Urgent—requiring priority attention.
TK	Tourniquet.
T	Indicating tetanus antitoxin has been given.
H	Internal hemorrhage.
M¼	Indicating ¼ grain of morphine or
M½	½ grain given.

In addition, a casualty record book will be part of the equipment of each physician's team. A nurse or nurse's aide should be assigned the responsibility for entering a record of every patient seen. This record should include the diagnosis, treatment and disposition.

NEW MEDICAL APPOINTMENTS

Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, Washington, D. C., has announced the appointment of a subcommittee of the Advisory Board of the Medical Division, Office of Civilian Defense, to prepare recommendations on protective procedures for hospitals in the event of belligerent action.

Dr. Robin C. Buerki, dean of the Graduate School of Medicine and director of hospitals of the University of Pennsylvania, Philadelphia, a member of the Medical Advisory Board, is chairman of the new subcommittee and the members are:

Dr. Willard C. Rappleye, commissioner of hospitals, New York City.

Dr. Asabel J. Hockett, superintendent of Touro Infirmary, New Orleans.

Dr. Anthony J. J. Rourke, medical superintendent of Stanford University Hospitals, San Francisco.

Dr. Joseph Turner, director of Mount Sinai Hospital, New York City.

Dr. Huntington Williams, commissioner of health of Baltimore.

The subcommittee held its first meeting at the Hotel Commodore, New York, November 6. With Dr. James M. Mackintosh, former Chief Medical Officer of the Scottish Ministry of Health, as a guest to advise the group, measures for preventing or minimizing damage to buildings, handling of casualties, evacuation, provision and protection of supplies, and training or personnel for specific duties in case of bombing were discussed in detail. The basis for discussion was a study made by a committee of the American Hospital Association on physical defense of hospitals, of which Dr. Hockett is chairman. It is expected that a report will be issued jointly by the hospital association committee and the committee representing the Office of Civilian Defense.

Dr. Mackintosh also conferred with the staffs of the medical and civilian protection divisions of the OCD at the Washington headquarters, November 7, describing in detail Britain's organization of its protective services, its early mistakes and the measures taken to correct them.

The basic organization for rescue work in a given area consists of three essential groups with a central control, police, rescue and fire services, ARP control and medical service.

One of the early mistakes was the belief that it was imperative to have first aid workers on the scene of a bombing immediately. Bitter experience showed that injured persons were usually buried under rubble and glass of their homes and that hours of work by the demolition and rescue squads were often necessary before first aid could be given.

Dr. Mackintosh emphasized the necessity for a central ambulance control. Ambulances are dispatched only by the central control and are not allowed to move from a bombed area until routes to hospitals have been surveyed. To stop "panic calls" from individuals, private tele-

phones are now cut off the moment an air raid warning sounds.

First aid posts, in addition to their obvious function of caring for the injured, are invaluable as rendezvous for rescue workers, physicians and nurses as well as the general population, who may become lost in the blackout, frightened, choked and blinded by dust, he said. In the first aid post the workers can clean up, have a cup of tea and return refreshed to their activities.

Appointment of Regional Medical Officers

The Office of Civilian Defense has organized on a regional basis, with regions corresponding to the U. S. Army Corps Areas. A regional director has been appointed for each region with headquarters in the same city in which the corps area headquarters are located. Regional medical officers have been appointed as follows:

First Civilian Defense Region: Dr. Allan M. Butler, 101 Milk Street, Boston.

Second: Dr. H. Van Zile Hyde, 111 Eighth Avenue, New York City.

Third: Dr. W. Ross Cameron, 400 Cathedral Street, Baltimore.

Fifth: Dr. William S. Keller, 425 Cleveland Avenue, Columbus, Ohio.

Eighth: Dr. Witten B. Russ, Majestic Building, San Antonio, Texas.

Ninth: Dr. Wallace Hunt, 233 Sansome Street, San Francisco.

These physicians have been commissioned as senior surgeons in the U. S. Public Health Service.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

At the last meeting of the McKinley County Medical Society, held on Wednesday evening, December 17, at Gallup, New Mexico, the following officers were elected for the coming year. President, E. A. Campbell, M. D.; Vice-President, F. W. Parker, M. D.; Secretary-Treasurer, W. D. Anthony, M. D. A letter was sent to Mrs. Peters, of Albuquerque, expressing the sympathy of the Society in the recent death of her husband, Dr. L. S. Peters. A committee was appointed to arrange for a party, in January, for the outgoing President, Dr. H. T. Watson, and for Dr. D. M. MacCornack, who is leaving Gallup in the near future.

It has been decided to send a letter to the McKinley County Commissioners, and to the Gallup Town Board, asking that they enforce the law pertaining to the capture and management of stray dogs in the community.

Due to illness, Dr. Vincent Accardi was unable to present a medical paper, as scheduled.

Reported by William Dodd Anthony, M. D.

Dr. LeRoy S. Peters, of Albuquerque, passed away December 17, 1941. A past president of the Southwestern Medical Association, Dr. Peters had taken active interest in the affairs of organized medicine in the entire Southwest. He limited his practice to internal medicine and the treatment of tuberculosis. Dr. Peters was a Fellow of the American College of Physicians, and a Governor of that body. He was a Diplomate of the American Board of Internal Medicine, a member of the staff of St. Joseph Sanatorium and Presbyterian Sanatorium of Albuquerque. Dr. Peters was born in 1882, was granted his M. D. degree by University of Illinois in 1906. He served as a medical officer in the U. S. Army during World War I.

Many are the hearts in the Southwest saddened by his passing. "Pete" was a grand friend, frank in his opinions, penetrating in

his judgments, loyal in a high degree. His cheerfulness and gift of guidance will be sorely missed by all who knew him. He passed as a doctor should—in the harness.

God rest the soul of our friend "Pete."

The officers of the Colfax County Medical Society for 1942: Dr. A. H. Follingstad, President; Dr. R. L. Fuller, Vice-President; Dr. R. W. Hack, Secretary-Treasurer. The first meeting of 1942 was held in Springer on January 20.

Dr. C. S. Hart, formerly Chief Surgeon for the Stag Canyon Branch of the Phelps Dodge Corporation of Dawson, New Mexico, is spending some time in hospital work at the University of Kansas Medical School, Kansas City, Kansas.

Dr. and Mrs. A. H. Follingstad are the proud parents of twin sons, born recently.

Dr. R. W. Hack was a recent visitor in El Paso, where he attended the meeting of the Southwestern Medical Association.

Dr. M. J. Poppen of Raton, who has been with the American Expeditionary force in Iceland since July 1941, is in charge of the surgical ward of the Marine Hospital. He reports the weather cold, but the people of Iceland very friendly and hospitable.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

The regular meeting of the El Paso County Medical Society was held December 8, 1941, in the Tea Room of the Hotel Cortez at 7:30 P. M. The meeting was presided at by Dr. Varner, the President. There was a guest speaker present from the Mayo Clinic, Dr. William C. McCarty, who presented a paper entitled "Early Diagnosis of Cancer."

Following Dr. McCarty's paper the annual business meeting was held. The election of officers was held with Dr. Cummins as election judge and Dr. Will Rogers and Bob Thompson as tellers. Two letters were read in connection with the election. One was a letter from Dr. Egbert requesting that his name be withdrawn from candidacy for president-elect, which request had previously been granted by the election committee. A letter was read from the nominating committee regarding the nominations made.

The minutes of the previous meeting were read and approved. The report of the Milk Committee was read by Dr. Leigh and a motion was made, seconded and passed that the report be accepted. The reports of all committees will be found filed separately in the archives of the Association. The report of the library and dues committee was made by Dr. Leslie Smith and a motion was made, seconded, and passed that this report be accepted. The report of the Cancer Committee was made by Dr. Hart in the absence of Dr. Cathcart and a motion was made, seconded, and passed that the report be accepted. The report of the Medical Economics Committee was made by Dr. R. B. Homan, Jr., and a motion was made, seconded, and passed that this report be accepted.

The financial report for the year was read by the Secretary-Treasurer. This report had previously been approved by the auditing committee. The report of the Executive Committee was read by the Secretary. A motion was made, seconded,and passed that the financial report and the report of the Executive Committee be accepted. Dr. Varner reported on the Home Defense also, stating that he, together with several other doctors, was in charge of organizing the doctors of El Paso to take care of Home Defense Work.

A motion was made, seconded, and passed to put $500.00 from our treasury into U. S. Defense Bonds. Dr. Stowe made a motion that the dues be raised from $18.00 to $25.00. This motion was amended by Dr. McCamant to the effect that the motion be submitted to members of the El Paso County Medical Society by mail and that the vote be held by mail. The amendment and the motion were passed. Before passing the motion there was a great deal of discussion as to the amount of dues of the Medical Society and it was pointed out that in order to have a library which amounted to anything it would be necessary to raise the dues. There was considerable discussion both pro and con on this

point. The report of the Military Affairs Committee was made by Dr. Will Rogers and the motion was made seconded and passed to accept his report. The report of the Public Health and Legislation Committee was made by Dr. Cummins in which it was recommended that the present food handlers law to be kept until a better one is passed by the State Legislature. Dr. Newman discussed this report in considerable length and stated that he was opposed to trying to enforce the food handlers law as it was written and felt that it should be dropped and certain other things be put into effect to protect the public from food handlers. (See Dr. Newman's report in the archives.) There was considerable discussion on this subject. A motion was made, seconded, and passed that the 2 reports be studied and neither accepted at this meeting. In addition to this the motion contains the statement that the whole subject be referred to the Executive Committee and that they report back to the County Medical Society in the near future about the matter. Dr. Laws reported for the special committee to study the situation of infant mortality in El Paso. Dr. Awe made the report for the Pneumonia Committee for the year.

The meeting was then turned over by Dr. Varner to the incoming president, Dr. Barrett, who presided for the rest of the meeting. The returns from the election were read (see attached report). Meeting adjourned.

New officers of El Paso County Society: President-Elect, W. E. Vandevere; Vice-President, J. E. Morrison; Secretary-Treasurer, C. F. Rennick; Delegates, R. B. Homan, Jr., L. O. Dutton; Alternates, T. J. McCamant, J. W. Laws; Librarian, L. W. Breck; Nominating Committee, George Turner, H. H. Varner, E. W. Rheinheimer; Economic Committee, H. E. Rogers; Milk Committee, S. D. Armistead, I. M. Epstein; Censor, J. L. Green; Board of Southwestern Medicine, L. O. Dutton, P. Gallagher; Cancer Committee, M. S. Hart.

The staff of Hotel Dieu Sisters' Hospital met January 6. The program:

Case of Gastrointestinal Hemorrhage, by Dr. H. Haffner.

Discussion by Drs. John Murphy and James Gorman.

Annual election of staff officers was held at the City-County Hospital December 17, 1941. The following were named:

Chief of Staff, J. Leighton Green, M. D.; Vice Chief of Staff, Robert Thompson, M. D.; Secretary, O. J. Shaffer, D. D. S.

At the regular meeting of El Paso County Medical Society on January 12, the program was as follows:

Tuberculosis Osteomyelitis of the Shaft of Long Bones by Dr. W. Compere Basom.

The Medical Defense Emergency Program by Dr. Harry H. Varner.

AUXILIARY NEWS

WOMAN'S AUXILIARY TO THE ARIZONA STATE MEDICAL ASSOCIATION

President, Mrs. B. B. Edwards, Tucson, Arizona.

Publicity Chairman, Mrs. Harold W. Kohl, Tucson, Arizona.

During the summer months, as usual in Arizona, very little was done by the Woman's Auxiliary to the Arizona State Medical Association. Committee chairmen were appointed shortly after the State Convention held in Phoenix last April. Our first board meeting was held in October in Tucson with a large attendance and plans for the year were discussed. We are hoping to have organized soon, two new counties—Yavapai and Cochise, making a total of four counties. Yavapai County is already making plans for the State Convention to be held in Prescott next May.

Owing to the present need for defense help our members are doing their share in helping in many different ways. Many have given a lot of time to the Red Cross in its many phases of work. Local philanthropic work is also being done.

Arizona was honored in having Mrs. J. D. Hamer of Phoenix appointed National Legislative Chairman at the last National Convention which was held in Cleveland.

Our National President, Mrs. R. E. Mosiman, hopes to make the Auxiliary in Arizona a visit some time in February.

WOMAN'S AUXLIARY TO THE MARICOPA COUNTY MEDICAL SOCIETY

Delegate's report by Mrs. Lloyd K. Swasey.

The hospitality and graciousness of the women of the Ohio Medical Auxiliary during the Nineteenth Annual Session of the American Medical Association held in Cleveland, June 2-6, 1941, will long be remembered by those who were so fortunate as to be in attendance.

The formal opening of the convention took place in the ballroom of Hotel Carter, Tuesday morning, June 3, 1941, with Mrs. V. E. Holcombe, President, presiding. One of the most impressive of the opening ceremonies was the procession of forty state president, each bearing their state flag to the platform and each giving a brief report of the activities of their respective auxiliaries.

During the opening session, the National Commander of the American Society for the Control of Cancer, Marjorie B. Illig, spoke of the nationwide program of the Society to fight cancer with knowledge, stressing the fact that cancer is the particular enemy of women, causing 60 per cent of the deaths.

Miss Etta A. Creech, Director of the Family Health Association, spoke on Child Health Education. Dr. Helen A. Hunscher, Professor of Home Economics, Western Reserve University, in her talk on Nutrition—Food for Fitness—reported on the recent National Nutrition Conference for Defense held in Washington under the direction of Federal Security Administrator Paul V. McNutt with 700 delegates in attendance. "The responsibility of these delegates was to arouse the nation to the importance of the nutrition problem both in a period of defense and in the long vistas of the future."

The business sessions including the reports of standing committees and the officers were concluded on Wednesday morning. The highlight of this session was the inaugural address given by Mrs. R. E. Mosiman, which was truly inspirational.

A luncheon honoring past presidents was held on Tuesday (noon) with Dr. National B. Van Etten, President of the American Medical Association, and Dr. Morris Fishbein, Editor of the American Medical Association Journal and Hygeia, as guest speakers. Dr. Fishbein, in his talk, pointed out that the aid that the Auxiliary could be expected to extend to physicians and their families moving into military camps, was in helping them to establish residences and becoming interested in their local societies.

The annual luncheon honoring the President, Mrs. Holcombe, was held on Wednesday, with Dr. Frank Lahey, President-Elect and the Honorable Hatton W. Sumners, Chairman of the Judiciary Committee, House of Representatives as principal speakers.

Members of the Advisory Council were also honor guests at this luncheon.

Tuesday evening found doctors and their wives assembled in the Music Hall of the Cleveland Auditorium for the introduction and installation of President-Elect Lahey.

Wednesday evening a reception honoring Mrs. V. E. Holcombe and R. E. Mosiman in the Allen Memorial Library, while Thursday evening the annual dinner at the Hotel Carter, for members husbands and guests, was given, with Dr. Arthur W. Booth, Chairman of the Advisory Council of the Woman's Auxiliary, and J. S. Newman, satirist and author of Poems for Penguins, as principal speakers, followed by the reception and ball in honor of President Lahey.

One of the outstanding places of interest visited in Cleveland was the Health Museum, a new and interesting project, and the only one of its kind in America.

The Cleveland Country Club was the scene of a fashion show and luncheon on Thursday.

Other events included a sightseeing tour through the city of Lakewood, and part of the 10,000 acre Metropolitan Park area to the airport, one of the largest in this country, where a courtesy flight over the city was at our disposal. This was followed by a tea at the Lake Shore Hotel, overlooking Lake Erie.

To Mrs. Fred C. Oldenburg, Convention Chairman, goes unstinted praise for her untiring efforts, and the success of the meeting for Ohio Auxiliary, in addition to being hostess to a National Convention, which was also celebrating its first birthday as a state auxiliary.

Invest in America !

MISCELLANY

DIAGNOSTIC HINTS IN ENDOCRINOLOGY

Poor circulation, with bluish and cold extremities, myocardial asthenia, reduced blood pressure are some of the common evidences of adrenal insufficiency.

The upper teeth are large in under-activity of the anterior lobe of the pituitary.

In Graves' disease there is a distinct lagging of the upper eyelid in relation to the upper edge of the cornea in motion from above downward.

Another constant eye sign observed in Graves' disease is a peculiar twitching of the eyes at the instant of changing the movement of abduction to that of adduction.

Bitemporal heminposia with the outer fields of vision impaired is one of the constant signs in tumor of the pituitary gland.

The iris of a patient with hypoadrenia while it reacts readily to light, contracts very slowly.

The administration of thyroid extract to a patient already suffering from thyroid toxemia always aggravates the symptoms.

Attacks of acute, circumscribed cutaneous edema and of gastric intestinal and sudoral hypersecretion is a common sign in parathyroid insufficiency.

In infants, severe atrepsia, skeletal nanism, with thick, short, deformed fragile bones are signs and symptoms of total thymus insufficiency.

In Graves' disease, the sclera will often show above and below the cornea. Most frequently it shows from below, or vice versa. It is best observed when the eyes are at rest.

The child suffering from hypoadrenia exhibits pallor, a pasty look to the skin, a flabby musculature, a lack of circulatory tonicity, a feeble cardiac activity, cold hands and feet, loss of appetite and loss of weight.

Severe epigastric pain, radiating to the back, obstinate vomiting and diarrhea, followed by profound weakness, reduction of blood pressure, low temperature, cold sweats and a slight bronzing of the skin indicates hyperfunction of the adrenals.

One of the characteristic features of thyroid deficiency is sensitiveness to cold. The actual body temperature is reduced in some cases as much as three and a half degrees.

The convulsions in parathyroid deficiency are almost always symmetrical on both sides of the body.

Double vision or blurring in pituitary enlargement signifies that the enlargement is beginning to impinge upon the optic nerve.

Hyperactivity of the parathyroids is characterized by weakness and pain in the bones. The bones become soft and deformities of the skeleton occur. In an advanced stage of the disease the chest may bulge and the legs bend outward, giving rise to a typical "frog-leg" appearance.

Eosinophilia, high blood uric acid, abnormal galactose and increased urine volume are among the valuable signs of pituitary deficiency.

—*Ohio St. Med. J.*

CAUSES OF PULMONARY HEMORRHAGE

(1) Acute inflammatory lesions
- tuberculosis
- pneumonias
- typhoid fever
- whooping cough

(2) Chronic inflammatory lesions
- bronchiectasis
- lung abscess
- lung gangrene
- actinomycosis
- echinococus
- fibroid pneumonia
- ulceration of the larynx, trachea or bronchi
- spirochetal bronchitis
- bronchial fluke
- other pulmonary parasites

(3) Hemorrhagic and blood diseases
- hemophilia
- scurvy
- hemorrhagic forms of infectious diseases

(4) Cardiovascular diseases
- myocardial failure
- mitral stenosis or insufficiency
- hypertension
- eclampsia
- pulmonary infarcts
- pulmonary thrombosis
- pulmonary embolism

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(5) New growths
mediastinal
pulmonary
bronchial
tracheal
laryngeal
(6) Trauma
gunshot wounds
stab wounds
fractured ribs
contusions
foreign bodies
(7) Miscellaneous
spontaneous
vicarious menstruation

—*Meakin's Practice of Medicine*

NEED FOR DOCTORS

President Roosevelt's call for a thousand American physicians to volunteer their services to Great Britain gives emphasis to the importance of doctors in this country's defense program. A shortage of doctors may be felt here before long unless Congress passes the pending bill of Senator Murray for deferment of medical and dental students and internes from the draft until completion of their training.

Many doctors and dentists already have left civilian life for work in the Army camps, and more will follow. To insure adequate medical personnel for both civilian and military needs, the medical schools must be kept fully open and the military training of their students and of hospital interns deferred until their terms are completed.

National defense calls for a competent medical personnel as well as for men to carry guns. The Murray bill offers the best assurance of preparedness in this field and should be passed promptly as a means to conserve the nation's medical resources and to make them available where they will do the most good. It embodies the kind of foresight needed to avoid a shortage of doctors like that which England now suffers.

—*Dallas News.*

PRIZE AWARD

Rules governing the award of "The Foundation Prize" of the American Association of

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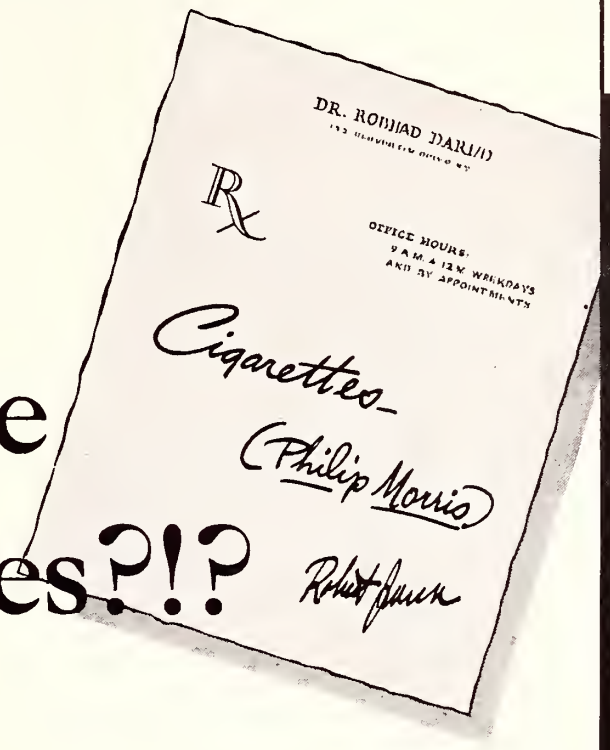

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**Facts from: Proc. Soc. Exp. Biol. & Med., 1934, 32, 241-245; N. Y. State Jrl. of Med. Vol. 35, No. 11,590; Arch. of Otolaryngology, Mar. 1936, Vol. 23, No. 3,306.*

Obstericians, Gynecologists and Abdominal Surgeons have been announced as follows:

(1) "The award which shall be known as 'The Foundation Prize' shall consist of $150."

(2) "Eligible contestants shall include only (a) interns, residents, or graduate students in Obstetrics, Gynecology or Abdominal Surgery, and (b) physicians (with an M. D. degree) who are actively practicing or teaching Obstetrics, Gynecology or Abdominal Surgery."

(3) "Manuscripts must be presented under a nom-de-plume, which shall in no way indicate the author's identity, to the Secretary of the Association together with a sealed envelope bearing the nom-de-plume and containing a card showing the name and address of the contestant."

(4) "Manuscripts must be limited to 5000 words, and must be typewritten in double-spacing on one side of the sheet. Ample margins should be provided. Illustrations should be limited to such as are required for a clear exposition of the thesis."

(5) "The successful thesis shall become the property of the Association, but this provision shall in no way interfere with publication of the communication in the Journal of the Author's choice. Unsuccessful contributions will be returned promptly to their authors."

(6) Three copies of all manuscripts and illustrations entered in a given year must be in the hands of the Secretary before June 1st."

(7) "The award will be made at the Annual Meetings of the Association, at which time the successful contestant must appear in person to present his contribution as a part of the regular scientific program, in conformity with the rules of the Association. The successful contestant must meet all expenses incident to this presentation."

(8) "The President of the Association shall annually appoint a Committee on Award, which, under its own regulations shall determine the successful contestant and shall inform the Secretary of his name and address at least two weeks before the annual meeting."

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SKIN CANCER

1. Cutaneous metastatic cancer may be associated with inflammatory signs.

2. The clinical features of inflammatory metastatic carcinoma of the skin are closely allied to true inflammation or erysipelas but there is no chill, fever, prostration or leukocytosis.

3. Based on clinical appearances, diagnosis is difficult and biopsy is usually necessary.

4. As inflammatory metastatic cutaneous cancer secondary to primary cancer of the breast is common, any inflammatory lesion of the skin on or about the breast, which does not subside within two or three weeks, warrants an incisional biopsy for diagnosis.

5. Histopathologically, the inflammatory signs are due to extensive lymphatic blockage by cancer cells which causes edema. The pressure of edema, plus actual blood vessel invasion, produces capillary congestion which is responsible for the clinical signs of redness and local heat.—*Wisc. Med. Jo.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

SYNOPSIS OF ALLERGY, By Harry L. Alexander, A.B., M.D. Professor of Clinical Medicine, Washington University School of Medicine, St. Louis; Editor of The Journal of Allergy. The C. V. Mosby Co., St. Louis, Mo. $3.00.

This short volume of 240 pages is an outline of the allergic diseases as we understand them today. The author avoids, as much as possible, controversial subjects, of which there are many in this field, and presents as concisely and clearly as possible that which is accepted by most workers in the field.

Diagnostic procedures are carefully evaluated and explained and therapeutic procedures are presented. Specific hyposensitization, avoidance of allergens, and palliative therapeutic measures are discussed in brief but concise manner.

The appendix contains a discussion of the occurrence of allergens in various household articles, directions for preparation of testing extracts and recipes for substitute dishes for those on dietary restrictions.

The book should be valuable for the general practitioner who wishes to have a survey of the

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field of allergy and to become familiar with its working methods.—*L. O. Dutton.*

SYNOPSIS OF THE PREPARATION AND AFTERCARE OF PATIENTS. By Hugh C. Ilgenfritz, A. B., M. D. Instructor in Surgery, Louisiana State University School of Medicine; Visiting Surgeon, Charity Hospital of Louisiana at New Orleans; and Rawley M. Penick, Jr., Ph. B., M. D., F. A. C. S. Professor of Clinical Surgery, Louisiana State University School of Medicine; Visiting Surgeon, Charity Hospital of Louisiana at New Orleans. With Foreword by Urban Maes, M.D., D.Sc., F.A.C.S. $5.00.

This small handbook is valuable for its wealth of information concerning the management of surgical patients. Excellent discussions are presented of fluid and electrolyte balance, shock, transfusion, general preoperative measures, and general postoperative measures. Minor and major postoperative complications are discussed in detail. The remainder of this book discusses special phases of these general principles as applied to the surgery of different organs. Procedures are given in careful detail and the indications for their use are carefully discussed. The volume can be highly recommended.

—*L. O. Dutton.*

DISEASES OF THE THYROID GLAND, by Arthur E. Hertzler, M. D., Professor of Surgery in the University of Kansas. Published by Paul B. Hoeber, Inc., 1941. 495 Illustrations. 670 pages. Price $8.50.

This is an extremely practical summary of diseases of the thyroid gland. Diagnosis, pathology, and treatment are discussed in detail, including specific consideration of pre- and postoperative management of the patient. One chapter is devoted to operative technique, and another to topographic anatomy, both well illustrated. Throughout most of the book the advantages of total thyroidectomy over partial thyroidectomy are emphasized, the author's observations being backed by his ten years of experience in performing this operation. Likewise emphasized is the importance of recognizing the cardiotoxic factors of goitre as compared to or combined with thyrotoxicosis. After reading the chapter on myxedema one can't help wondering what became of the thyroid gland physiology he learned in medical school. All phases of thyroid pathology are discussed in the author's inimitable style and pictured by photographs and clinical illustrations. The reasonable conclusions drawn by the author from his clinical experience raise many questions regarding present concepts of thyroid function. This book is recommended.—*J. F. Standard.*

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MICROBES WHICH HELP AND DESTROY US: By Paul W. Allen, Ph.D. Professor of Bacteriology and Head of the Dept. of University of Tennessee. D. Frank Holtman, Ph.D. Associate Professor of Bacteriology University of Tennessee, and Louise Allen McBee, M. S. Formerly Assistant of Bacteriology University of Tennessee. $3.50.

This volume of 540 pages, intended for the lay reader, furnishes very interesting reading concerning infectious diseases, and at the same time, gives authoritative scientific data which serves to dispell many of the ill-founded concepts that the general public has concerning such illnesses. The historical aspects are reviewed very entertainingly through the development of scientific knowledge concerning bacteria from the days of superstition to the present time. The present concepts of infection and resistance are well explained, and then a series of infectious diseases are discussed in detail. These include such representative diseases as tuberculosis, meningitis, diphtheria, rabies, smallpox, malaria, and a number of others. Each section is complete in that it covers the historical knowledge concerning the given subject under discussion, the development of the early research work leading to our present-day concept, and the fundamental facts concerning what the medical profession is able to do with these different infectious diseases. The book is well illustrated and can be definitely recommended to fulfill the purpose for which it was written.

—*L. O. Dutton.*

SYNOPSIS OF GENITOURINARY DISEASES. By Austin I. Dodson, M. D., F. A. C. S., Richmond, Virginia. Professor of Genitourinary Surgery, Medical College of Virginia; Genitourinary Surgeon to the Hospital Division, Medical College of Virginia; Genitourinary Surgeon to Crippled Children's Hospital; Urologist to St. Elizabeth's Hospital; Urologist to St. Luke's Hospital and McGuire Clinic. $3.50.

This small handbook of 300 pages is a fairly complete discussion of urological problems. It begins with a discussion of the urinary tract. Following this, the remainder is devoted to a discussion of various conditions affecting the urogenital tract, each entity being discussed from the standpoint of etiology, pathology, symptoms, treatment, and complications. Discussion of each subject is precise and to the point, and offers in detail therapeutic procedures. Modern concepts are included, particularly in the field of chemotherapy. The book should be valuable as a handbook for the specialist in this field. Likewise, it is a compact, to the point handbook which should be valuable to those in general practice who occasionally do

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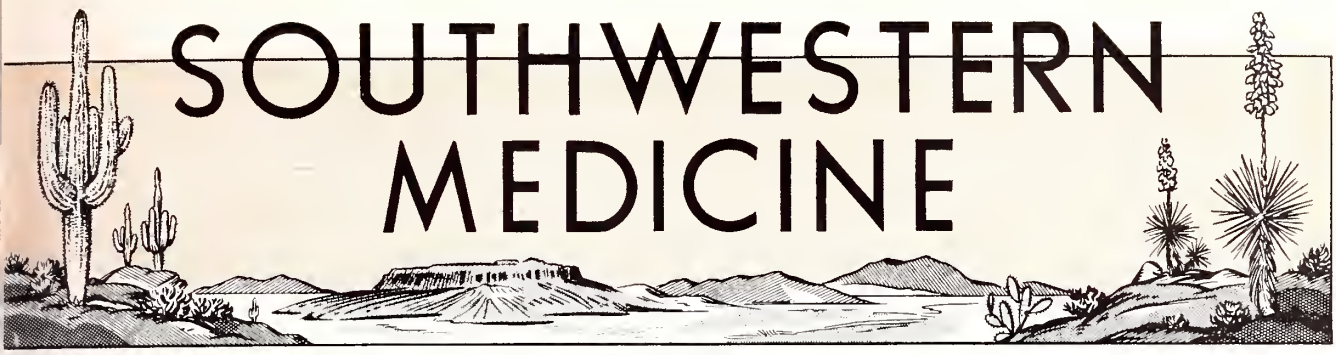

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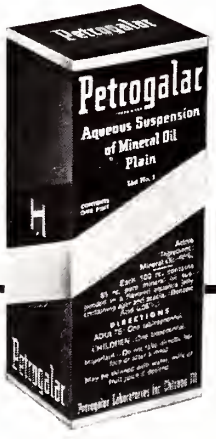

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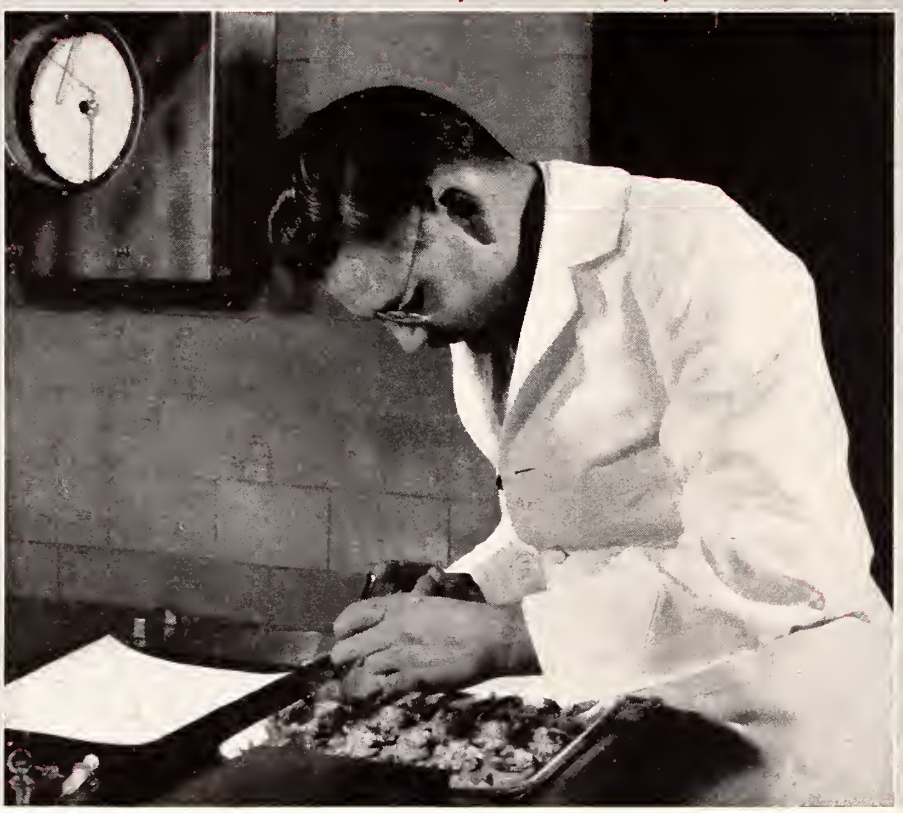

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COLLABORATION

Collaboration can be of two kinds, it seems. There are Brothers Hitler and Hirohito, with the new brand—"collaboration" of the enslaved at the point of the sword. Since Americans just don't like that type of collaboration, we are in a war about it.

Rather to be preferred is the teamplay which is making possible the development of the newest of man's brain-children, the electron microscope. There was first an Englishman, with basic discoveries regarding electrons; then an Austrian, a Frenchman, two Germans, a Belgian, two Canadians and several Americans have spliced together the contributions of numerous workers. So that today the electron microscope is a reality, and is in use in research laboratories in several nations. Not limited by the wave length of light, this new tool can magnify 50 to 100 times greater than the finest of previous microscopes. And there is one under construction in New York today that will magnify 1 million times.

Already the virus of tobacco mosaic has been identified by the electron microscope; other viruses are under scrutiny as well as the minute morphology of bacteria and the molecular composition of various compounds. Seen on a fluorescent screen certain bacteria are now known to possess very tough body walls, others have flagella-like appendages. Certain organisms under attack by various chemical compounds have been studied, and the hitherto unknown is beginning to unfold like the pages of a child's primer. Erythrocytes appear to be 2 feet in diameter under the screen of this instrument. Is it too much to expect that many, many of the secrets of life and death, sickness and health will be revealed soon? Numerous serious workers believe that science has opened the door to an entirely new and inspiring vista.

The right sort of collaboration has brought us this great new gift. May Hitler's sort soon perish from this earth—there just isn't room for two kinds.

CANCER

The real existence of the greatest national emergency in our history is now recognized by every intelligent American citizen. Along with the vast demands made upon our courage and patience by this situation is a keener realization of our responsibilities to care for the lives and happiness of those unfortunate people who find themselves in personal physical adversity.

The greatest of all these menaces to the health, happiness and life of our people is cancer. The quality of its threat and of its power as a killer is unique. War itself may take a larger toll of Americans in the years to come. Various heart conditions of cardiac disease may do the same thing. Neither, however, will so silently, so grimly, and with such evil power to disintegrate moral stamina, invade the lives and families of our people. We must not lose sight of this fact. No matter what our emergency obligations may be, we must not forget this great continuing enemy of mankind.

Fear, ignorance, and delay are the three allies of cancer which lead to disaster and death. They can be overcome by knowledge of the early signs and symptoms of the disease and of the methods of fighting it. The American Society for the Control of Cancer throughout the country has for years been engaged in this battle. It is making progress. It must not lose the gains made, and indeed must drive ahead. The defeat of fear, ignorance, and delay lies in the adop-

tion of an intelligent and controlled point of view by each individual. These same qualities will contribute to his or her success in fighting whatever the national emergency may present.

The fight against cancer is an ally in the fight against our foreign enemies. The methods are much the same. The qualities appealed to in the individual are similar. The complete victory spoken of by the President in discussing the international situation is just as applicable to our fight against cancer. Both victories can be gained. We must recognize how closely they may be related to one another and must act speedily, courageously, and untiringly to make both possible.

C. C. Little.

Review of the Surgical Treatment of High Blood Pressure

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ARTERIAL hypertension is a disease of primary medical importance. While medical therapy is frequently the only available treatment, it is adequate much of the time to keep the patient well. In many cases, however, patients develop progressively more severe hypertension in spite of all medical measures. Disabling symptoms become more pronounced, and the patient may be confined to bed or remain in bed most of the time because of the recurrence of symptoms on getting up.

In this latter group of cases of arterial hypertension are individuals with severe nervousness, restlessness, easy fatigue, and disabling headaches. Their hypertension is usually extremely high, although this is not invariably true. The diastolic blood pressure, however, is usually above 100 mm. and seems to be fixed at this level. Part of this group is made up of cases with severe acute blood vessel changes demonstrated in the ocular fundi; these may also show malignant hypertension with extensive vascular changes and nephritis, and may result in rapid death. But in the remaining cases, there are many which are less severe and which can be relieved by sympathectomy of the kidneys. *Fig 1.*

Sympathectomy of the kidneys, as a rational method of treating essential and malignant hypertension, is based upon the experimental studies of Goldblatt[1] and his associates.

They have demonstrated in animals that, by gradually compressing both renal arteries with small silver clamps, they are able to produce a renal ischemia with resultant arterial hypertension.

This experimental hypertension, once developed, has most of the characteristics of human hypertension, being chronic and progressive, and showing many changes expected in other organs of the body. The lack of pathological lesions in the kidneys of these animals is due to the fact that the flow of blood is slowed before reaching the kidneys and not within them.

The hypertension in these experimental animals is present as long as the blood flow to the kidneys is slowed and while a definite renal ischemia exists. When the clamps are loosened from the renal arteries, the blood pressure falls; and the vessel changes and other pathological alterations throughout the body directly related to the hypertension begin to improve. This experiment suggests that the beneficial results from sympathectomy are due to an increase in the flow of blood through the kidneys.

Following a sympathectomy, there is dilitation of arterioles in the part of the body formerly supplied by these nerves. It is reasonable to suppose that a sympathectomy of the kidneys will cause an increased flow of blood through them, thereby increasing their glomerular filtration bed and function. Goldblatt in discussing the correlation between experimental and human hypertension makes the following statement: "Since the renal factor [of hypertension] in man is frequently due to narrowing of the lumen of only the arterioles of the kidney, without narrowing of the lumen of the large arteries, improvement of the circulation might result from the various surgical operations on the nervous system, as a result of relaxation of those arterioles in which the organic changes are not fixed. The lowering of blood pressure reported . . . by surgeons using various procedures which, directly or indirectly, affect the

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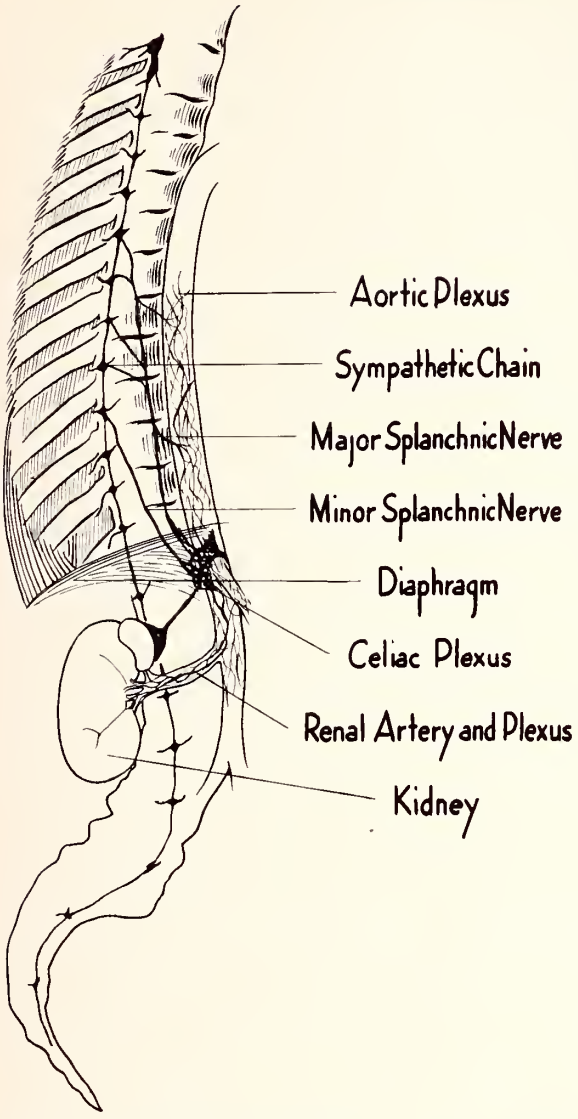

vasomotor nervous mechanism . . . may, therefore, be due mainly to one cause; namely, the improvement of the circulation through the kidneys, and not, as has been suggested, directly to the relaxation of the arterioles in a large part of the vascular bed of the abdomen, independently of any effect upon the kidneys. The latter view has no support in experimental observations."

These observations of Goldblatt, therefore, condemn all sympathetic operations for hypertension that include abdominal ganglionectomy. The authors[2, 3] of these techniques themselves indirectly condemn them when they discuss the disabling effects of these procedures. Methods of treating high blood pressure which make the patient faint when he stands, or cause his pulse to become more rapid when he stands or exerts or result in more fatigue on exertion than was experienced before the operation certainly should be considered advisedly. All such responses of the cardiovascular system are indications of more cardiac embarrassment, of greater strain on the heart and not of relief from the strain of hypertension. It is obvious that adequate treatment should relieve the hypertension when the patient is recumbent as well as when he is standing.

If, as Goldblatt says, the object in the surgical treatment of hypertension is to increase the blood supply to the kidneys, any operative procedure that in any way embarrasses this blood supply will defeat the desired result. In dogs, and to a lesser degree in man, there is an accessory blood supply to the kidneys by way of blood vessels to the capsule of the kidney. Any surgical exploration around them might very well interrupt this accessory circulation to kidneys in which the blood supply is already embarrassed and produce further renal ischemia sufficient to precipitate acute hypertensive or nephritis symptoms. An operative procedure in which this blood supply is not disturbed is highly desirable.

Goldblatt says that he hesitates to suggest decapsulation of the kidney followed by omentopexy as a procedure to increase the blood supply and relieve hypertension. There are those[4], however, who are applying this method with some degree of success. The danger of disturbing the auxiliary blood supply to the kidneys may be a valid argument against this method, but it should not be used to discredit it until the degree of disturbance has been studied more thoroughly.

SELECTION OF METHOD OF TREATMENT

The surgical method selected for the treatment of hypertension, should be designed to do the most with the least possible disabling or disfiguring of body structures and function. A method based on sound anatomical, physiological, and pathological reasoning is the most appropriate. The experimental work at hand indicated that the method should be aimed at producing an increased flow of blood through the kidneys. A complete sympathectomy of the kidneys should accomplish this with the greatest effect[5].

The kidney receives its sympathetic nerve supply from the lower eight thoracic segments by way of the splanchnic nerves and their efferent fibers. Many of these fibers run separately to the celiac plexus or to the sortic plexus, making their connections in this way with the renal plexus and with the kidney. Realizing the tremendous number of variations in the sympathetic nervous system, one can understand how impossible it is to completely denervate the kidney when operating below the diaphragm. It is frequently difficult to identify aberrant sympathetic fibers above the diaphragm even when it is possible to trace them from their source. Fibers may be seen to join the splanchnic nerves and then to leave them again to penetrate the diaphragm alone or to proceed separately to the aortic plexus.

From a technical standpoint, the method of choice should therefore be that performed above the diaphragm if it accomplishes reasonably beneficial results. The sympathectomy above the diaphragm is adequate; it is accompanied by no disabling sequalae except the occasional backache and is better adapted to these patients than any other operation so far proposed.

RESULTS OF SYMPATHECTOMY

Braden and Kahn[6] in an elaborate statistical study of the cases operated upon above the diaphragm by Peet show a reduction in blood pressure of at least 40 points in the systolic and 15 points in the distolic blood pressure in 43% of the cases. Also, they show an improvement in pathological eye ground in 81%; an improvement in pathological urinary concentrating ability in 45%; an improvement of impaired urea clearance in 45%; a decrease of 10% or more in heart size in 58% of the cases where the heart was found to be enlarged preoperatively; a 48% improvement of abnormal electrocardiograms; appreciable relief of distressing subjective incapacitation in 84% of the cases. Finally, in the 85 cases in which data were available, a normal blood pressure was shown to be maintained in all but five cases for periods ranging from 6 to 60 months.

Peet[7] in a more recent report says that 85% of all the patients on whom he was able to obtain data, postoperatively had relief of major symptoms. Headache was relieved most often. Capacity to carry on at work was improved 81%. A fall of at least 40 points in systolic and 15 points in diastolic blood pressure was observed in 51%, of which about one-half of these returned to a normal blood pressure.

Evidence of improvement in vision and in the appearance of the ocular fundi, of decreased heart size and lessened cardiac embarrassment and of improved renal function, especially in cases with abnormal urinary excretion, was apparent in 45 to 70% of the cases in which data were available.

Splanchnicectomy gave more favorable results in females under the age of 30 years. Beyond the age of thirty the results were about the same.

Advanced changes in the ocular fundi, even papilledema, did not contra-indicate the operation.

Finally, according to Peet, the effects of sympathectomy performed above the diaphragm so as not to include the abdominal chain are permanent and the results of this procedure are better than any other, either medical or surgical, thus far reported.

In conclusion, my experience has confirmed most of the facts presented in the above statistics. In particular, relief of headache is most marked, relief of other distressing symptoms is apparent, many severly affected optic fundi, even with papilledema, have been seen to improve and the swelling disappear. Finally, at least 50% of the patients postoperatively obtained satisfactory permanent improvement.

Metropolitan Bldg.

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Tuberculous Osteomyelitis of the Shafts of the Large Long Bones

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TUBERCULOUS lesions of the shafts of the large long bones comprise a group of cases which are very difficult to differentiate from pyogenic osteomyelitis. The first lesion was described 100 years ago and probably was correctly diagnosed even though Koch did not discover the myco-bacterium tuberculosis until 1882. The literature on the subject has now become relatively voluminous and about 350 cases have been reported[2].

PATHOGENESIS

Lesions which arise in the joint or epiphysis and envolve the shaft of the bone secondarily will not be considered in this paper since that group of cases requires a different type of treatment. In this paper only lesions which originate primarily in the shaft or metaphysis will be considered. Shaft tuberculosis usually is secondary to some other tuberculous focus in the body. Trauma may have some effect on the localization of the infection, however this is open to question. There are some instances in which direct implantation might have been responsible for the infection, as there are two cases in the literature which resulted from bullet wounds[3]. Direct extension from a nearby tuberculous lesion may also cause shaft tuberculosis.

PATHOLOGY

Tuberculosis of bone is not always characterized by destruction of bone. Proliferation of bone may occur if compact cortical areas are involved[1]. It is the reaction of bone to the etiological agent rather than the specific type of invading organism present which determines the gross pathological picture.

Most lesions will show evidence of both proliferation and destruction of bone. A classification of the gross pathological picture is interesting and helpful from a standpoint of differential diagnosis and treatment. The following types may be noted:

Type 1 is a solitary tuberculosis abscess which is usually located in the metaphyseal area.

Type 2 is localized tuberculous osteomyelitis.

Type 3 is the diffuse type of tuberculous osteomyelitis.

Type 4 is tuberculous periostitis, which is characterized by the presence of rarefied laminated new bone in the periosteal layer over an apparently intact cortex.

Type 5 is tuberculous infections of fractures.

CLINICAL OBSERVATIONS

Clinically the diagnosis may be strongly suspected but cannot be established positively. The symptoms and signs vary with the extent and type of lesion. The variants may range from a mild chronic type of pain with slight tenderness and moderate swelling to a sub-acute onset with severe pain and marked swelling. Temperature that is elevated by a few degrees and a slight leucytosis may be encountered. The presence of associated proved lesions as are present in a high percentage of the cases will aid greatly in establishing the correct diagnosis. Associated lesions may occur in the lungs, cervical on inguinal lymph nodes, in the sacro-iliac joint and other areas. If one of these lesions is present the diagnosis is more easily suspected. In the case of the local lesions, the tibia has been involved most frequently, the ulna and femur next in order[6]. Roentgenograms are helpful and of course should always be made, however, at times there are no observations which may be made clinically which suggest the possibility of shaft tuberculosis.

A tuberculous abscess may simulate closely a Brodies' abscess. The onset is insidious with no constitutional symptoms[8]. Occasionally attacks of dull aching pain may occur in the region of the lesion. The disease may tend to spread through the cortex later on. Tuberculosis periostitis is manifest by the presence of mild, chronic pain localized over the lesion. No general symptoms are present. There may be a history of injury. The lesion in the early stage may look like a soft tissue abscess or hematoma. In the extensive lesions of the shaft of the bone the onset is sub-acute. There may be severe pain and swelling of the entire portion of the envolved bone. Pain and tenderness may be marked during the first two weeks after which time a fluctuant swelling may be found in the soft tissues. The temperature may vary from

98.8 to 101.3 degrees Fahrenheit and in many instances constitutional symptoms may be present.

DIFFERENTIAL DIAGNOSIS

Certain clinical pictures may develop from different etiological agents. Bone may react in a similar manner to similar stimuli even though stimuli are produced by different etiological agents[10]. From the clinical picture alone it is difficult to establish with any certainty, the diagnosis of tuberculous osteomyelitis. Biopsy and guinea pig inoculations must be resorted to in most cases. The following conditions may be simulated by shaft tuberculosis.

BRODIES' ABSCESS

This is a well localized pyogenic abscess usually without external fistula or sequestrum which is located in the extremities of the long bones. It is not of tuberculous origin. It is not as close to the epiphyseal line usually as the tuberculous abscess. Pain, enlargement and periosteal thickening occur commonly. The tuberculous abscess is smaller and more strictly localized, with, as a rule, little thickening of the periosteum or bone. It has a tendency to early proliferation of the epiphyseal cartilage or to lateral rupture. Usually the wall of a tuberculous abscess is not as sclerotic as the wall of the pyogenic abscess.

BONE CYSTS

Bone cysts lack pain and tenderness. There is thinning of the bone. In a pyogenic abscess and occasionally a tuberculous abscess there may be enlargement of the bone.

PYOGENIC OSTEOMYELITIS

This is a difficult differential diagnostic condition. Usually the purely destructive lesion is tuberculous. In pyogenic osteomyelitis the sequestrum occurs relatively early in contrast to the late appearance in tuberculosis. The onset of tuberculous osteomyelitis is less acute. The pain is less severe. The febrile reaction less pronounced and the leucocyte count does not show as great an increase of polymorphonuclear neutrophiles. Not only may the roentgenograms resemble pyogenic osteomyelitis but the gross appearance of the lesion at operation may be confusing[5]. The biopsy may be the only means of diagnosing the condition.

SYPHILIS

In syphilitic periostitis or osteitis the serum reaction, the history and evidence of lues may help in the differential diagnosis from tuberculosis. The lesions are also more likely to be bilateral. Syphilis is supposed to be more formative than the other preceding conditions. Fundamentally there is a periosteal reaction causing gross thickening and change in the shape of the bone. Tenderness is only moderate. Local elevation of the temperature is not noted. There is no sinus formation. Syphilis is practically never associated with cavity formation according to Sorrel[13]. Roentgenologically syphilis is difficult to differentiate from shaft tuberculosis.

Fig. 1. (a) Clinically, this lesion seemed to be a Brodies' abscess. This is type 1; the solitary tuberculous abscess.
(b) Localized tuberculosis osteomyelitis; type 2; lower third of the right femur.
(c) Diffuse osteomyelitis of the entire shaft of the left tibia—type 3.

NEOPLASMS

Neoplasms such as Ewings' tumor and osteogenic sarcoma may simulate tuberculous osteomyelitis. However, the clinical and roentgenological findings change rapidly. In a case with a short history differentiation may be difficult. The pain is less severe. Tumor formation will be present with an irregular blurred outline in the roentgenogram. The destructive type of osteomyelitis may resemble metastatic carcinoma of bone.

CHRONIC SCLEROSING OSTEITIS

This condition is probably a low grade infectious process, it tends to involve the midportion rather than the end of the bone. Fever and leucytosis may occur often. There is a spindle shaped enlargement of the shaft with thickening of the cortex and narrowing of the medullary cavity. There is no suppuration. Cases of tuberculosis have been reported which clinically could not be differentiated from this lesion[9].

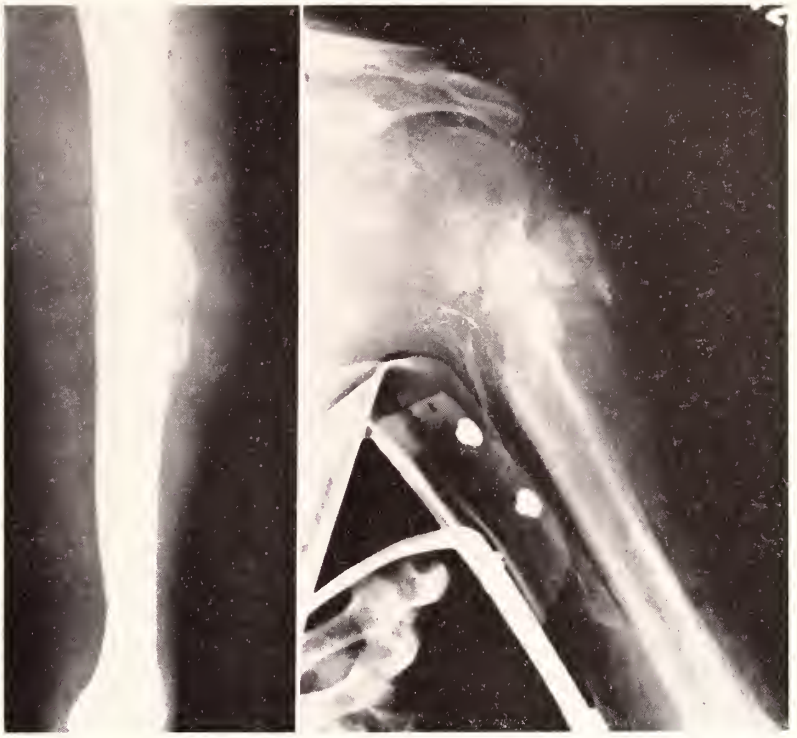

Fig. 2 (a) Boney tumor situated in the middle third of the left radius in the periosteal and soft tissue region. Tuberculosis periostitis—type 4.

(b) Ununited fracture of the neck of the left humerus with marked infection, caused by a bullet injury injury six months prior to the admission of the patient; the wound had failed to heal—type 5; tuberculous infection of fractures.

COCCIDIOIDAL GRANULOMA

This infection when it involves bone may closely resemble tuberculosis both clinically and pathologically. The clinical course is not constant. Fever is more or less irregular. The epiphyses and tubercules of the long bone are both frequently involved. Accurate differentiation cannot be done by roentgenogical examination alone. Microscopically the lesions resemble those of tuberculosis and can be distinguished only by the presence of the parasite.

PROGNOSIS

Apparently the prognosis as regards life is good in the majority of uncomplicated cases; that is, those without associated lesions. The local prognosis as regards the bone is good[7]. There is a strong tendency towards healing. Joint motion is not seriously interferred with. On the whole, the local prognosis is much better in shaft tuberculosis, than it is in joint tuberculosis. About 50% of the cases will recover. The mortality rate tends to be around 8% to 10%.

TREATMENT

General Therapy

General therapy consisting of fresh air, good hygenic surroundings, and a well balanced diet are all important as in the treatment of pulmonary tuberculosis. Rollier has confidentially stated that all cases of external or surgical tuberculosis, even the most severe, can be cured by heliotherapy. He believed that the condition is a general infection and that it must be combatted by all forces of the entire body[12]. General therapy is indicated in all cases.

Local Therapy

It is difficult to outline a procedure which would be correct for the treatment of the local lesion in all cases. This varies with each individual case. Apparently operation with exploration of sinus tracts, drainage of abscess cavities, removal of sequestra and diseased bone when practical is the procedure of choice. The wound may be closed when there is no secondary infection[4]. If secondary infection is present then the wound should be left open, packed with

vaseline gauze and the Orr treatment instituted[11].

CONCLUSIONS

Shaft tuberculosis may simulate pyogenic osteomyelitis, Brodies' abscess, certain types of neoplasms, chronic sclerosing osteitis, osseous syphilis, and coccidioidal granuloma.

Clinically shaft tuberculosis may be strongly suspected, however, positive diagnosis can only be established by microscopic examination or by certain laboratory procedures. Routine examination of all tissue removed during the operation of every case of bone infection is necessary in order to pick up some cases of shaft tuberculosis. Repeated examinations when practical, when indicated and deemed safe (repeated operations may cause generalized spread of the local lesion), may be necessary to establish a diagnosis in some cases. A positive culture for a pyogenic organism does not rule out the possibility of shaft tuberculosis.

General therapy for tuberculosis is all important in the treatment of every case. The treatment of the local lesion has been outlined.

Roberts-Banner Bldg.

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Clinical Problems in the Diagnosis and Treatment of Jaundice

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THE detection of jaundice, itself, presents no difficulty. A suspicion as to its presence is readily corroborated by the van den Bergh reaction which measures the amount of bilirubin in the blood and distinguishes between uncomplicated hemolytic and other types of icterus. The chief problems are concerned with the differentiation between jaundice due to obstruction which requires surgery and jaundice due to liver injury which needs medical treatment.

PHYSIOLOGIC CONSIDERATIONS

In the solution of problems relating to jaundice some knowledge of the physiology of the liver is indispensable. Although much remains to be clarified, physiologic investigation, experimental surgery and studies in the fields of hematology, nutrition and endocrinology have produced information which has a direct clinical application. The functions of the liver are concerned mainly with external secretion of bile, the manufacture of food materials and other substances, the storage of food materials, regulation of the composition and volume of the blood, and with detoxication. Glands of internal secretion exert their effect, particularly in the chemical control of carbohydrate metabolism, mainly within the liver.

The following characteristics and activities of the liver are of special interest:

1. Although undifferentiated histologically the parenchymal cells carry on functions remarkable in number, diversity and complexity. They work under low oxygen tension since about three-fourths of the hepatic blood supply is delivered by the portal vein.

2. Normal activities can be maintained by some 20 per cent of the usual liver bulk. The capacity for regeneration is so great under favorable conditions that, as stated by Ivy, after experimental removal of 70 per cent of the liver as much as 90 per cent of regeneration may occur within a few weeks. Most important in creating favorable conditions is the administration of large amounts of glucose.

3. Complete removal of the liver experimentally is followed by hypoglycemia which is fatal within 18 hours unless glucose is given; even though hyperglycemia is maintained by the administration of glucose, death occurs within

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48 hours. The animal finally succumbs as a result of the loss of manifold activities and not because of a lack of a single function.

4. Absence of bile in the duodenum resulting from experimental bile fistula causes death after a few months, from nutritional disturbances. The oral administration of whole bile produces partial alleviation of symptoms. The bile salts serve as specific activators of pancreatic lipase and make possible the absorption of fats, carotene, the fat-soluble vitamins D and K, and probably E.

5. The liver cells are responsible for the maintenance of a relatively stable blood-sugar level. They form glucose from the more complex sugars, from the monosaccharides, galactose and fructose, and from certain amino-acids derived from protein. Glucose is converted into gylcogen as is the lactic acid formed in muscular activity. Glycogen storage is promoted by insulin. The glycogen reserve is depleted by fasting and by various hepatotoxins; an ample store supports the detoxifying function of the liver and favors regeneration of liver cells.

6. In protein metabolism the liver cells change certain amino-acids into glucose when the supply or utilization of carbohydrate is inadequate. Urea is formed mainly in the liver after splitting of the combustible amino group. The administration of amino-acids orally or intravenously can effectively maintain nitrogen equilibrium.

7. The fat content of the liver is increased by pancreatic deficiency, by hepatotoxins and usually by fasting. Ketone bodies are formed chiefly, and perhaps solely, in the liver. More recent studies indicate that energy is normally derived from the oxidation both of fats and of carbohydrates and that ketogenesis is an expression of increased fat metabolism made necessary by a diminished supply or faulty utilization of carbohydrate.

8. An anti-pernicious anemia factor is stored in the liver as is most of the iron derived from food. In experimental anemia produced by bleeding, the feeding of liver substance accelerates the production of hemoglobin.

9. Vitamin A is formed in the liver from carotene, and stored there. The liver is rich in vitamin B and stores vitamins D and K, and probably E.

10. Fibrinogen and plasma protein appear to be formed in the liver. Prothrombin is evidently manufactured or activated here since hypoprothrombinemia is common when severe liver injury is present. Although low blood prothrombin levels accompany experimental vitamin K deficiency, failure of absorption of vitamin K, due to deficiency of bile salts in the duodenum, is more important clinically. A combination of liver damage and absence of bile is evidently of frequent occurrence.

LIVER FUNCTION TESTS

Since the liver is not known to possess a single vital function attention has necessarily been directed to the investigation of individual activities. Numerous tests concerning every measurable function have been proposed in the hope of discovering a group of tests which would permit an evaluation of liver function as effectively as do certain simple procedures in the study of gastric and renal disease. There are available measures of the effectiveness of excretory function, of the regulation of blood composition, of metabolic activity and of the capacity for detoxication as well as miscellaneous procedures. Many of them are occasionally useful but most have been discarded. That almost all of the tests proposed have serious limitations is, of course, not surprising in view of the margin of safety and the regenerative capacity of the liver. In the important task of differentiating between obstructive and toxic jaundice a further obstacle is due to the fact that the mechanism of jaundice may be complicated and include both mechanical obstruction of bile and hepato-cellular injury.

There has been a tendency to use a rather large number of tests in order to measure hepatic efficiency. This has been due to recognition of the fact that positive results were seldom to be expected unless injury to the liver were diffuse and severe; although some tests might be negative, others might reveal impairment of certain individual functions. After reviewing the most useful procedures Soffer, in 1935, concluded that to appraise the functional status of the liver it was desirable to test as many functions as possible. While this statement is true there are practical objections of which the most important are expense to the patient and confusion caused by difficulties in interpretation. More recently emphasis has been placed on the

use of a limited number of tests repeated at regular intervals in the same patient, and on the complementary use of a few tests that are usually positive in the presence of liver injury and negative in the presence of uncomplicated obstructive jaundice, and vice versa. Great as is the aid furnished by the laboratory, no tests can supplant the information derived from a painstaking clinical study of the patient. This includes, of course, a careful history particularly as regards pain, the use of drugs, and exposure to certain industrial hazards.

TYPES OF JAUNDICE

It must be admitted that no classification of jaundice is entirely satisfactory. This is due mainly to the fact that instead of a single mechanism, several modes of production may be involved. Nevertheless, a classification that lists the chief primary mechanisms and stimulates a search for the predominant one is clinically useful. Based on the van den Bergh reaction, two types of jaundice are recognized, "retention jaundice" caused by excessive blood destruction and "regurgitation jaundice" due either to liver injury or to obstruction of the large bile ducts from neoplasm or stone. Of more practical value is the following classification which recognizes three types of jaundice: hemolytic, occurring "before the liver"; hepatic, occurring "within the liver"; and obstructive, occurring "beyond the liver". Accurate differentiation is not always possible. In common duct obstruction of long standing associated liver cell injury is to be expected; with severe, primary hepato-cellular damage obstruction of capillaries and small bile ducts within the liver may occur.

TESTS OF PARTICULAR VALUE IN THE PRESENCE OF JAUNDICE

Only a few procedures give information that is decisive. Other measures are of aid in determining the mechanism of the jaundice and of value in prognosis and as a guide in treatment.

Serologic tests for syphilis are indispensable for syphilis may produce the clinical picture of acute hepatitis, chronic hepatitis (cirrhosis) or hepatic tumor. In syphilitic disease of the liver the Wassermann test is, fortunately, nearly always positive. Non-syphilitic liver disease may, of course, be present in patients with lues. False positive reactions may occur in non-syphilitic patients who have acute liver damage as in eclampsia; in such cases reactions are usually negative later when active liver injury has subsided.

Hyperbilirubinemia is measured by the *indirect van den Bergh* reaction. *A positive direct reaction* is obtained in jaundice produced both within and beyond the liver and rules out uncomplicated hemolytic jaundice. The *icterus index,* which merely measures the degree of yellowness of the serum, provides a rough estimate of the intensity of jaundice but has no quantitative relation to the indirect van den Bergh reaction. Repeated at intervals in the same patient these tests are obviously of value in indicating whether jaundice is stationary, decreasing or increasing.

The presence or absence of a flow of bile into the duodenum is easily detected by examination of the duodenal content. A rough estimate of the amount of bile excreted may also be obtained by testing the stools for urobilinogen with mercuric chloride. The information derived is important but seldom decisive. Clay-colored stools may be due either to mechanical obstruction or to severe liver injury. The most frequent cause of complete absence of biliary excretion is a neoplasm; tumors may, however, produce only partial obstruction. Quantitative tests for urobilinogen are obviously of greater value than qualitative tests but are usually impracticable.

Of liver function tests the following seem at the present time to be the most simple and satisfactory,—the galactose tolerance test, the hippuric acid test, and the cephalin flocculation test. Dye and bilirubin excretion tests are obviously useless in the presence of jaundice. The *galactose tolerance test* is based on the principle that, in the presence of hepato-cellular injury the transformation of galactose into glucose in delayed or incomplete. Forty (40) grams of galactose and water are given in the fasting state, the urine is examined for sugar every hour for five hours and the total excretion determined. In diabetic patients glucose must be removed by rapid fermentation with yeast. Total excretion of more than 3 grams of sugar denotes severe, diffuse liver damage. The test is of limited value because it is usually negative in mild or subacute hepatitis. The *hippuric acid test* proposed by Quick is based on the ability of the

liver to convert benzoic acid into hippuric acid by conjugation with amino-acetic acid. Six (6) grams of benzoic acid are given by mouth in the fasting state and the urine collected every hour for four hours, when the total amount of hippuric acid excreted is chemically determined. Normally at least 3 grams of hippuric acid, calculated as benzoic acid, are excreted. Excretion of less than 2 grams is ascribed to liver damage provided renal disease and gastric retention have been ruled out. The intravenous test using 1.77 grams of sodium benzoate dissolved in 20 c.c. of water, has the advantage of requiring only one collection of urine at the end of one hour. Normally one gram (or 0.7 gram of hippuric acid equivalent of benzoic acid) is excreted. The *cephalin-cholesterol flocculation reaction*, which depends on specific properties of certain cephalins, was proposed by Hanger in 1938. Although the mechanism is not clear it has been suggested that an altered constituent of globulin becomes attached to the surface of cephalin-cholesterol particles. The colloidal suspension is added to the patient's serum and after 24 and 48 hours the degree of flocculation and precipitation of lipids in the test tube is noted. Normally and in the absence of liver injury no flocculation occurs. In acute hepatitis a strongly positive reaction appears in 24 hours and becomes negative as the condition subsides. In portal cirrhosis the reaction is usually posiive. In obstructive jaundice, however, the reaction is usually negative or only slightly positive in 24 hours; a more strongly positive test may be obtained if the sheep-brain cephalin has not been aged by exposure to air before the addition of cholesterol. Several reports that have appeared indicate that this is a sensitive measure of active liver disease. In a small series of patients under my observation the cephalin flocculation test has proved the most useful single test of intrahepatic disease.

In *obstructive jaundice*, two tests—the serum phosphatase level and the blood cholesterol value—are of particular interest. The *phosphatase of the serum* is believed to be formed chiefly in the bones from which it passes into the blood and then into the liver where it is excreted in the bile. When the bile ducts are blocked a marked accumulation of phosphatase occurs in the serum. In hepatitis there is sometimes a slight, and more rarely, a moderate increase; a marked elevation would seem to be due to an associated obstructive factor within the liver According to the Bodansky method, the serum phosphatase normally seldom exceeds 6 units in adults and 15 units in children. The *blood cholesterol,* normally 150-220 mg. per cent, is usually markedly increased in obstructive jaundice and particulary when carcinoma is the cause. unless complicated by severe infection. The cause of the hypercholesterolemia is not clear. In acute hepatitis the blood cholesterol is usually normal or subnormal.

The complementary use of the cephalin flocculation test (usually positive in acute hepatitis and negative in obstrucive jaundice) and the serum phosphatase determination (usualy increased in obstructive jaundice and normal in acute hepatitis) has been suggested by Gutman and Hanger as a routine procedure. This may seem an over-simplification but since some simplification is certainly desirable, this procedure merits a trial in a large series of cases.

Detection of a tendency to bleed, common in jaundice, is clearly important, particularly if surgery is contemplated, for trauma supples a factor that favors hemorrhage. Among other factors that influence vascular permeability are general infections, bacterial toxins, vitamin deficiencies, and specific vasculo-toxic substances. Ivy's test of "*venostasis bleeding time*" provides a simple method of discovering whether the patient actually bleeds. *Coagulation time* may be easily determined by the Lee and White method. *Capillary fragility* can be detected by the Rumpel-Leeds sign but petechiae may be more accurately counted by means of a special method of producing localized negative pressure. Determination of the *blood ascorbic acid level* permits the detection of vitamin C deficiency which predisposes to bleeding and to non-healing of wounds. Another important but perhaps somewhat over-emphasized factor in the bleeding tendency is the *prothrombin level of the blood* which can be measured indirectly. In patients with jaundice the usual causes of hypoprothrombinemia are lack of absorption of vitamin K due to a deficiency of bile salts in the duodenum, and parenchymatous liver damage. Vitamin K and bile salts or synthetic substances having the action of vitamin K increase the blood prothrombin level unless this is prevented by liver injury. It is of interest that a level as

low as 20 per cent of normal seems sufficient to prevent hemorrhage and of equal interest that hemorrhage may occur when the prothrombin level is normal. The latter observation emphasizes that hemorrhage is not due to a single mechanism.

Cholecystography often gives useful information. Non-visualization of a gaall-bladder that is normal may, of course, be due to common duct obstruction or to severe liver injury. However, in many cases of mild jaundice the gall-bladder can be visualized; in such event information that the gall-bladder is normal is reassuring and connotes, as well, the presence of fairly efficient liver function. The gastrointestinal x-ray study may be necessary to rule out a gastric or bowel lesion is, of course, recognized.

SPECIAL PROBLEMS

The most important questions to be solved are concerned with (1) the determination of the primary mechanism involved; (2) the recognition, as soon as possible, of factors that require surgical relief; (3) a decision, in cases of doubtful or complicated mechanism, as to the desirability of an exploratory operation; (4) a decision as to the optimal time for operation in both of the preceding groups of surgical patients; (5) the detection of a predisposition to hemorrhage; and (6) the use in medical management of measures that protect the liver and favor regeneration.

Jaundice due to blocking beyond the liver obviously requires surgical relief. The question of how soon the operation should be performed presents no special difficulty, at least in theory. The decision depends on the duration of jaundice before the patient has been seen, on the clinical course from this time, and on an estimate as to whether previous ill-health and the more recent effects associated with jaundice demand a period of preparation in order to lessen the risks of surgery. In any event, preparation for at least a week is almost always advisable, and if there is no contra-indication a longer delay may be desirable. An exception to this rule is gall-stone colic followed by obstruction from a calculus, in a patient recently without symptoms but known to have gall-stones. A prolonged delay is usually due to uncertainty as to diagnosis.

Detection of the primary mechanism is usually not difficult if the patient is seen early. However, differentiation between acute hepatitis and obstructive jaundice may even then be difficult or even impossible. In cases of undiagnosed, recent intense jaundice there is considerable variation in practice as to the optimal time for exploration. The surgeon is perhaps inclined to favor exploration too early, while the internist, aware of the occasional case of hepatitis that shows improvement only after several months, is apt to wait too long before advising operation. A period of observation of one to two weeks is much too short to rule out most cases of acute liver injury in which surgical interference willbe of no avail and may, indeed, be harmful. Bloomfield, on the basis of statistics on the duration of jaundice from the onset to the beginning of resolution, concludes that a period of observation of at least a month is necessary to rule out hepatitis. On the other hand, in many instances the delay in exploratory operation is unnecessarily long. The progress of jaundice is easily checked by appropriate tests, as is the presence or absence of bile flow into the duodenum. There is seldom an excuse for waiting more than six weeks from the onset of jaundice, particularly if, during the period of observation, measures have been carried out to support the liver and prepare the patient for possible surgical treatment.

Medical treatment, of particular importance in cases of jaundice originating within the liver, consists essentially of the administration of sufficient carbohydrate, largely glucose, to prevent if possible, further hepato-cellular damage and to favor regeneration, together with the supply of various accessory food factors of which the patient has been depleted. That further exposure to possible hepato-toxins such as cinchophen, neoarsphenamin and sulfonamid preparations, be avoided is self-evident. The value of vitamin C concentrates has been demonstrated. Vitamin C is indicated when the blood ascorbic acid level is low and vitamin K when hypoprothrombinemia exists. The diet is clearly important. The patient should receive 400 to 500 grams of carbohydrate daily. In acute hepatitis this amount can seldom be taken by the oral route even with the help of supplementary feedings of glucose in fruit-juice, candy or syrup. Glucose must, therefore, almost always be given intravenously in concentrations of 10, 20, or even 50 per cent in order to pro-

vide the necessary amount of sugar. In severe acute hepatitis, or when the patient is unable to take food, glucose and fluids are the only urgent requirements. Later an effort should be made to provide sufficient protein to keep the patient in nitrogen equilibrium. The diet prescribed should be very low in fat content but it is not necessary to insist on a fat-free diet. The protein allowance should be limited to about 40 grams.

In *portal cirrhosis* great benefit may be derived from the use of glucose, vitamin B concentrates, and vitamin C. Ascites may disappear spontaneously under such treatment. Diuretic management is also of value and may obviate the necessity of paracentesis and prevent the recurrence of ascites. By means of a low salt diet, ammonium chloride, and intravenous injections of mercurial diuretics, one patient loses 40 pounds of fluid and lived a year without any recurrence of fluid. Another patient, now under observation, has lost 30 pounds of fluid on medical management.

CASE REPORT

Case 1. Mr. G., age 73 years. Jaundice and pruritis had been present for one week. Mild didabetes had been recognized 18 months previously. Stools were clay-colored and contained no urobilinogen. The urine was bile-stained. The icterus index measured 85 units, blood cholesterol 249 mg. per cent, and blood prothrombin level 58 per cent of normal. Roentgen examination showed stomach, duodenum and colon to be normal.

After seven days the stool still contained no urobilinogen and the prothrombin level had dropped to 40 per cent of normal despite the use of vitamin K and bile salts. The patient was obviously losing ground. Fluids had been administered and insulin used . A laparotomy was performed by Dr. H. M. Richter after 15 days of jaundice; carcinoma of the head of the pancreas was found and a cholecystogastrostomy was done. Postoperative recovery was rapid and without incident. The patient lived in comfort for three months.

This case presented no particular problem. The diagnosis seemed clear. A palliative operation was indicated after only a brief period of preparation.

Case 2. Miss M., age 25. This patient for four years had had recurrent attaeks of pain, vomiting, fever and jaundice. The stools at all times contained urobilinogen. The first attack occurred when she was a student nurse and led to an appendectomy. A second attack occurred 10 months later and thereafter she was never entirely free of jaundice. uring D1939 she had six attacks. The pain was usually in the right upper quadrant and was sometimes referred to the back and shoulders. On one occasion she had a chill. Leukocytosis was never observed. In an interval between attacks the icterus index was 22 units; a positive delayed direct van den Bergh reaction was obtained; stools contained urobilinogen; galactose tolerance and bromsulphalein tests were negative. Cholecystography revealed a normal gall-bladder and gastrointestinal x-ray studies were negative. The spleen was not enlarged and the red blood cells were normally resistant to hypotonic salt solution.

An exploratory laparotomy in February, 1940 revealed no pathology. Three attacks occurred in January and February, 1941, the icterus index ranging between 15 and 45 units. Cholecystography and gastrointestinal x-ray studies were again negative. Various serologic tests were negative, as were skin tests for tuberculosis and undulant fever. Another laparotomy was performed by Dr. H. M. Richter in March, 1941, and again no gross pathology was noted. Cholangiography was negative. Biopsy of the livevr, however, showed numerous scattered small focal abscesses of the average size of three liver cells and composed mainly of groups of polymorphonuclear leukocytes with occasional eosinophiles. The biliary tree was comparatively free of inflammatory eells but the branches of the portal vein and the central veins were surrounded by and contained numerous polymorphonuclear leukocytes. The pathologic diagnosis was acute diffuse hepatitis, evidently originating in the branches of the portal vein.

Six months after the laparotomy the patient feels well enough to resume her duties as a nurse, but her sclerae are icteric and the icterus index is elevated. A cephalin flocculation test performed for the first time was strongly positive in 24 hours.

This patient has a chronic hepatitis with acute exacerbations, apparently infeetious but of unknown etiology. She has been subjected to three laparotomies although at no time were there any suggestions of obstruetive jaundice. The liver function tests performed were negative until recently when a positive flocculation test was obtained. The usual treatment designed to protect the liver by means of glucose and vitamin concentrates, and the administration of whole bile salt preparations have been of no benefit.

Case 3. Miss L., age 23. This patient was admitted to the hospital in April, 1941, with jaundiee, glycosuria and a discharging sinus at the site of a recent appendectomy. Headache, nausea, and vomiting began in January and were ascribed by the patient to fumes inhaled in the factory where she was employed. Slight jaundice was noted on February first, and two

weeks later an appendectomy was performed. Glycosuria was then noted and jaundice increased. Ten days after the operation the wound opened and had to be resutured.

The following table shows the results of various laboratory tests performed, in some instances, at weekly intervals:

Direct van den Bergh reaction—positive.
Indirect van den Bergh reaction—20, 18, 12, 12, 8.
Stool urobilinogen—present in all specimens.
Hippuric acid excretion—normal.
Galactose tolerance—normal.
Blood phosphatase—5.3, 5.4.
Blood cholesterol—220; esters 60 per cent.
Blood prothrombin level—54, 26, 25, 22 per cent of normal.
Cholecystography—normal gall-bladder.

Of decisive importance in diagnosis were positive Wassermann and Kahn tests on three occasions. The jaundice was definite but never very marked. Despite the use of glucose, calcium and vitamin K the prothrombin blood level decreased progressively, and in this instance suggested progressive liver injury. Anti-syphilitic treatment was begun with potassium iodide and, later, small doses of bismuth were injected. After six weeks of hospital care, the general condition of this patient had definitely improved; the only indication of progressive liver injury was the reduction in blood prothrombin level and a slight residual jaundice.

Case 4. Mr. C., a liquor salesman, age 51, was admitted to the service of Dr. H. B. Carroll on September 4, 1940, because of painless jaundice of seven weeks duration. The patient was afebrile and had lost 28 pounds in weight. The liver was palpable and tender. Glycosuria and hyperglycemia were present. During three weeks of observation many laboratory procedures were carried out. Most revealing were positive direct van den Bergh reactions and hyperbilirubinemia of 18, 23, and 23 mg. per 100 c.c. of blood; icterus index values of 120, 135 and 120 units; the absence of bile in the duodenum on admission, and the subsequent absence, or the presence of only a trace of urobilinogen in the stools; a blood phosphatase level of 23 units; blood cholesterol elevation to 770 and 704 mg.; and a blood prothrombin level 14 per cent of normal, increased by therapeutic measures to 20 and finally to 25 per cent of normal. The laboratory findings corroborated the clinical impression of obstructive jaundice.

A laparotomy was performed in the eleventh week of jaundice by Dr. J. A. Wolfer. The gall-bladder was distended and the common duct greatly dilated. A firm, but not hard, mass about two inches in diameter was palpated in the head of the pancreas; this mass merged with the body of the pancreas which was of the same consistency. The common duct was opened; dark bile, and some white bile were evaluated but no stones were present. A probe was passed down to but not beyond the mass in the pancreas. Chronic pancreatitis was diagnosed. The gall-bladder was anastomosed to the duodenum. Following the operation the van den Bergh reaction showed a reduction in serum bilirubin to 12 mg. in two weeks and to 7 mg. after three weeks; the icterus index fell to 80, 47 and 35 units. The blood phosphatase level decreased to 17 and then to 6 units and the blood cholesterol to 560 units. The blood prothrombin level increased to 31, and later, to 50 per cent of normal. The jaundice disappeared slowly and on diabetic management the patient gained weight and strength.

About six months after the operation severe abdominal and back pains appeared and control of the diabetes became difficult. The patient became progressively worse and died in June, 1941. At necropsy extensive metastases were found in the liver, and other metastases were present in the neighboring glands, the lungs and kidneys. Sections showed pancreatic duct carcinoma.

In this patient clinical observation and laboratory studies were not possible until seven weeks after the onset of jaundice. The observation period of 23 days, during which large amounts of glucose, bile salts, vitamin K, and other vitamin concentrates were administered, was probably longer than necessary Cholecystoduodenostomy was performed without postoperative complication and was followed by complete disappearance of the jaundice

Case 5. Mrs. F., age 47 (service of Dr. H. B. Carroll). Painless jaundice and severe pruritis had been present for five weeks before admission to the hospital. The liver was definitely enlarged and the spleen was just palpable.

During three weeks of observation the following pertinent information was gained from laboratory studies: the icterus index ranged from 100 to 120 units; duodenal drainage on admission revealed no bile and subsequent stool examinations showed only a trace of urobilinogen; the urine contained bile pigment; serum phosphatase measured 31 and 37 units, and the blood cholesterol 645 and 568 mg. per 100 c.c. The blood prothrombin level was 17 per cent of normal and after the administration of vitamin K preparations and bile salts, increased to 25 and then to 95 per cent of normal. The blood ascorbic acid level was normal on admission. Cholecystography resulted in non-visualization of the gall-bladder; a barium meal showed normal stomach and duodenum.

Operation was performed by Dr. J. A. Wolfer on June 24, 1941, in the ninth week of jaundice after three weeks of observation and preparation. The liver was markedly enlarged, the gall-bladder normal, the large ducts patent. The right lobe of the liver showed a depressed scar 3 cm. in diameter. A hard mass was palpable above and adjacent to the right border of the gall-bladder and in the hilus where the ducts emerged from the liver. No other pathology was

noted. Sections from the scar of the right lobe and from the under surface of the liver showed extensive replacement of parenchyma by fibrous scar tissue, swollen liver cords, compressed sinusoids and enormous dilatation of bile ducts, interpreted as "obstructive biliary cirrhosis". The gall-bladder was drained but during the first week after operation drainage averaged only 30 c.c., and during the second and third weeks, 60 and 120 c.c. respectively. On discharge from the hospital drainage had ceased and no improvement had been effected. Three months after operation the patient's condition was unchanged.

This patient evidently had obstructive jaundice due to blocking just outside of the liver. Although the sections removed showed no carcinoma it must be assumed that a malignant tumor is the cause of the obstruction. Chiefly illustrated is the remarkable rise in the prothrombin level of the blood after appropriate treatment, and the decreased operative risk after careful preparation.

Case 6. Mrs. A., age 47 years. This patient came to the hospital for the study of her jaundice because of conflicting advice as to treatment. Some physicians had advised exploratory laparotomy and others had expressed the opinion that no benefit could be derived from surgery. A very annoying pruritis had appeared 15 months previously and shortly thereafter icteric sclerae were observed. In October, 1940 a prompt direct van den Bergh reaction was found; icterus index was 32; urobilinogen was present in the stools; a serum phosphatase level of 13 and a blood cholesterol of 317 were reported. Cholecystography revealed a normal gall-bladder and splenic enlargement was not observed. Surgery was advised. In January, 1941 other physicians noted bilirubinemia of 3.8 mg. per 100 c.c. of blood, an icterus index of 26 units, the presence of bile in the duodenal content, enlarged liver and spleen. They diagnosed biliary cirrhosis and advised against an operation.

On admission to the hospital in April, 1941 pruritis was intense, the skin showed diffuse pigmentation ascribed to melanin, and both liver and spleen were easily palpable. The van den Bergh test showed a positive direct reaction and a quantitative bilirubinemia of 2.7 mg. The icterus index was 40 units. The stools were brown and contained urobilinogen. The urine contained no bile. A galactose tolerance test was normal; the serum phosphatase level was 19 units and the blood cholesterol 406. Prothrombin blood level was 95 per cent of normal. The tests used showed no obstruction to the flow of bile into the duodenum, but suggested an obstructive mechanism.

In September, 1941, despite efforts to follow a high carbohydrate diet and the use of chondroitin and vitamin B concentrates, the patient had lost weight. Jaundice was more intense, with 9.1 mg. bilirubin in the blood and an icterus index of 80 units. A cephalin flocculation reaction was strongly positive in 24 hours, providing evidence, at last, of parenchymatous damage known to exist. An intravenous hippuric acid test showed excretion of 0.78 gm. (78 per cent of normal. The blood cholesterol had increased to the very high value of 1960 and the serum phosphatase to 85 units.

This patient evidently has a biliary cirrhosis of unknown etiology. The gall-bladder is apparently normal. Since there is no obstruction to the passage of bile into the duodenum it is difficult to envision any good results from surgery. A positive cephalin flocculation test, and less conclusively, a hippuric acid test, indicate parenchymatous injury. The marked increase in serum phosphatase and blood cholesterol levels suggests obstructive jaundice, and we must conclude that the obstructive factor is within the liver, itself. Nothing has been found to relieve the pruritis and the prognosis is evidently poor.

Case 7. Mrs. M., age 44 years, was admitted to the service of Doctor Carroll in June, 1941, with mild jaundice of one month's duration. Liver enlargement had been noted 18 months previously, at which time gastrointestinal x-ray studies were reported to be negative. The patient stated that slight fever of unknown cause had been present at intervals since early adult life. Her appetite had been poor for years. She had been accustomed to taking alcohol before and after dinner. Undernutrition was evident and a slight fever, sedimentation rate of 56 mm., and marked secondary anemia were present. The smooth liver extended to the navel; the spleen was not definitely palpable; no ascites detected. The icterus index averaged 60 units during three weeks of observation. Stools contained urobilinogen. Of liver function tests, galactose tolerance was normal but a positive cephalin flocculation was obtained. The serum phosphatase level was normal. The blood prothrombin level was 26 per cent of normal. Three months later ascites was apparent and a paracentesis was performed.

This patient evidently has a portal cirrhosis with superimposed jaundice. Chronic infection of unknown origin, dietary deficiency and alcohol are evidently etiologic factors. An explanatory operation, which had previously been advised, would be of interest mainly in ruling out carcinoma. The prognosis seems poor.

Case 8. Mr. L., age 51 years. This patient was brought to the hospital in July, 1941 with a hemorrhage, having just vomited blood and passed blood in his stools. He had been in robust health until a year previously when he had abdominal symptoms ascribed to gall-bladder

disease on the basis of a positive shadow in this region and non-visualization of the gall-bladder by cholecystography. The prior use of alcohol was admitted. Three blood transfusions were given. A barium meal and enema revealed no pathology. Ascites, which had been overlooked on admission, became marked. The icterus index measured 10 units. Bromsulphalein retention of 40 per cent was observed, a galactose tolerance test was positive (5.3 gm. excreted), and a cephalin flocculation reaction was positive in 24 hours. Total serum protein, serum phosphatase level, and blood cholesterol were normal. The blood prothrombin level and blood ascorbic acid levels were low.

A high carbohydrate diet was used and in this case small amounts of insulin were given. Vitamin B concentrates and vitamin C were administered. Sodium chloride was withheld and ammonium chloride, gm. 4 daily, administered. Four intravenous injections of mercupurin, 0.5 to 1.0 c.c., were given during a period of ten days. As the result of diuresis the patient lost 21 pounds in weight, from 186 to 165 pounds, between August 15th and 25th. After the ascites disappeared, splenomegaly was noted but the liver was not palpable. A month later the ascites was still absent, the spleen had decreased in size, and the patient had gained in weight and strength.

This patient evidently had a decompensated portal cirrhosis. Liver function tests indicate active liver damage without jaundice. The clinical course to date illustrates the effectiveness of medical management. Insufficient time has elapsed to warrant a conclusion as to whether further improvement will permit this patient to resume his former occupation.

CONCLUSION

Management of patients with jaundice requires as a background, familiarity with the physiology of the liver and of the biliary tract. In the frequently difficult differentiation between jaundice originating within the liver and jaundice produced by mechanical obstruction, the most important points to be determined are the degree and course of the bilirubinemia, the presence or absence of the flow of bile into the duodenum, the presence or absence of evidence denoting active liver injury, the presence or absence of findings that clearly suggest an obstructive mechanism, and the existence of a tendency to bleed. The answer to these questions is greatly aided by appropriate laboratory tests. Effective clinical use of such measures requires recognition of their limitations and a simplification of procedure with emphasis on fewer, selected tests performed more frequently on the same patient.

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Acute Lymphatic Leukemia

(Precipitation by Severe Hemorrhage)

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THE first case of Leukemia was recorded by Hughes Bennett[1] in 1845. He described the case as a suppuration of the blood with enlargement of the liver and spleen, and called the disease *Leucocythemia*. The same year Virchow[2] reported a similar case and gave it the name of *Leukemia*. However, not until 8 years later (1853) was the distinction made by Virchow[3] between splenic and lymphatic leukemia. In 1891 Ehrlech began his blood staining, and at this time division between myelogenous and lymphatic types was made.

Ordway and Gorham[4] found that leukemia occurs in between one and three cases per thousand hospital admissions. Of 6000 autopsies performed at Cooke County Hospital, Chicago, 58 of these had leukemia. Kracke[5], in his text *Disease Of The Blood*, give 14 classifications for types of leukemia. The main three divisions, however, are myelogenous, lymphatic

and monocytic leukemia. Any of these types may be acute or chronic, and may have aleukemic phases. Chronic lymphatic leukemia accounts for 20% of all leukemias. Rosenthal and Harris[6] made a study of 455 cases, and of these 38% were acute; of this 38%, 30% were myelogenous, and 7% were lymphatic.

Search of the literature reveals that the etiology of leukemia is as obscured now as it was in 1845. There is much evidence in favor of leukemia being neoplastic in nature. However, there is no agreement on this point. Heredity, sex, race, trauma, mental and physical strains are given as predisposing causes[7]. Males usually predominate three to one in all types of leukemia. Osler mentions that leukemia is often preceded by trauma. Yacuda and Rosenthal[8] reported three cases following trauma; one of these was struck on the shin by a shovel and twelve days later developed an acute myelogenous leukemia. The second case had a heavy object fall on his foot and ankle, and six weeks later developed an acute lymphatic leukemia. The third case fell and injured his hip with a fracture of the femur. Two weeks later he was found to have an aleupekic myelogenous leukemia. They also pointed out that Lutham in 1930 had collected 40 cases of leukemia in which trauma had preceded the development of the blood picture. In two cases recorded here, trauma followed by severe hemorrhage seemed to bring out the latent leukemia. The first case was probably a low grade lymphatic type which was precipitated into an acute phase by the strain thrown on the reticulo-endothelial system from severe blood loss. The second case began as an acute lymphatic type following severe blood loss from trauma.

The symptoms of leukemia may begin with asthenia, dyspnoea, rheumatoid pains, hemorrhages from the mucous membranes, abdominal pains and neuropathic complaints[9]. Physical signs soon are apparent, such as lymphatic gland enlargement, anemia, enlargement of the liver and spleen, fever, toxemia and stomatitis with oozing from the gum margin. One case has been seen which started as a gangrene of the entire nvula

Diagnosis may be made by the above symptoms and physical signs; but usually the classification of a type of leukemia can only be made by blood study. Diagnosis of leukemia from the blood, according to Kraeke[10], may be put under four headings—1st, ANEMIA; 2nd, REDUCED BLOOD PLATELETS, usually under 50,000; 3rd, INCREASE IN THE WHITE BLOOD COUNT, usually between 50,000 and 100,00; 4th, INCREASE IN THE NUMBER OF LEUKOBLASTS, either lymphatic, myelogenous or monocytic.

Prognosis in leukemia is always the same—100% fatal. There is no evidence that any proven case has ever recovered. The acute cases usually go very rapidly, with toxic symptoms and progressive decline. The best prognosis is probably in the chronic lymphatic types, which may go on sometimes for a period of 5 to 6 years

Roentgen-Ray[11] therapy was first used for leukemia in 1901 by Pusey[12], following its discovery by Roentgen in 1895. The Curies discovered radium in 1898 and it was used for leukemia in 1914 by Renon, Degrais and others in France.

Other therapentic methods used have been blood transfusions, fever therapy, Benzol medication, foreign protein injections, spleenectomy, and others—all to no avail. X-ray therapy over the spleen and enlarged glands and repeated blood transfusions are probably the only measures of real value.

CASE REPORTS

H. A. H. Male, aged 70, was brought to the office 3-12-38 with severe bleeding from a laceration on the right cheek and from the right nostril. The patient had been perfectly well until one hour previously when he was walking along and was hit by a rock from a blast. The rock was reported to be about the size of a man's fist. He was knocked down but not unconscious.

Examination revealed a deep laceration 9 cm. long, extending horizontally across the right cheek down to the maxillary bone. The laceration was still actively bleeding. A piece of packing in the right nostril had controlled a severe nasal hemorrhage to some extent. The laceration was cleansed with soap and water and tincture metaphen, bleeding controlled with ligation and the wound approximated wtih 4 skin sutures The nasal packing was removed and clean packing placed in the right nostrol. It was apparent that the intranasal hemorrhage was coming out of the ostium of the right antrum. Physical examination was otherwise negative except for shock from hemorrhage. Since he had traveled 40 miles and been bleeding actively for an hour he had lost considerable blood. He was not only bleeding from the soft tissues of the face, but a fracture into the outer orifice of the

right maxillary sinus had caused an intramaxillary sinus hemorrhage

An anterior-posterior picture of the sinus showed a fracture of the right maxilla with homogenous clouding of the right antrum and maxillary region. He was hospitalized for observation and treatment for shock.

3-13-38 (next day) — Urinalysis and Kahn negative.

R. BB. C. 3,100.000
Hemoglobin 62%
W. B. C. 2,950
Polys 35%
Lymph. 60%
Monos. 4%
Baso. 1%

The only abnormality was that there were many young lyphocytes counted among the 60% lymphoeytes.

On the patient's insistence he was allowed to return home after being in the hospital two days. His condition was good, although he was, of course, weak.

He returned to the office one week later. He looked very weak and toxic so was re-admitted to the hospital. The right antrum was irritated and some blood clots obtained—no pus. Blood count R. B. C. 3,540,000, hemoglobin 72%, W. B. C. 29,700, with a large proportion of immature lymphocytes. It was apparent now that he was developing a lymphatic lenkemia.

3-31-38 Blood picture 3,280,000, 88,000 whites composed of young lymphocytes.

4-4-38—98,000 W. B C.—98% lymphocytes.

4-8-38—97,000 W. B. C.—93% lymphocytes.

4-11-38—101,000 W. B. C.—R. B. C. 3,840,000 —72%

4-13-38—172,000 W. B. C.—R. B. C. 3,360,000 —70%

4-14-38—Patient beeame gradually worse and died.

CASE II

N. H., age 12, male, was brought to the office 5-27-41 with an epistaxis from the left side of the nasal septum. The mother stated that he was struck on the nose while playing at school and had had several severe nose bleeds during the past 48 hours. Otherwise the boy had apparently been in good health. The erosion of the septum was touched with a chromic acid bead, which controlled the bleeding. The boy returned two days later (5-29-41) stating that he had had no further trouble until this day, when he began to bleed again. The bleeding was again controlled by canterizing with chromic acid. He looked at this time toxic out of proportion to the blood loss. He was referred for general check-up, which revealed a beginning enlargement of the liver and spleen.

R. B. C. 2,940.000
Hemoglobin 68% gms.
W. B. C. 33,400
Neutro. 5
Lym. 22
Eosin. 2
Lymphoblasts 68
Meylocytes 2

He was admitted to the hospital—

5-30-41—W. B. C. 21,250 64% lymphos.
5-31-41—W. B. C. 19,750 54% lymphos.
6- 1-41—W. B. C. 20.250 71% lymphos.
6- 2-41—W. B. C. 13,100 80% lymphos.
6- 3-41—W. B. C. 10,250 71% lymphos.
6- 4-41—W. B. C. 8,100 79% lymphos.
6- 5-41—W. B. C. 3,100 82% lymphos.
6- 6-41—W. B. C. 4.000 81% lymphos.
6- 7-41—W. B. C. 4.050 88% lymphos.
6- 8-41—W. B. C. 5,900 49% lymphos.
6- 9-41—W. B. C. 11,550 45% lymphos.
6-10-41—W. B. C. 20.400 52% lymphos.
R. B. C. 3,470,000
Hemoglobin 70%

During this period in the hospital the boy continued to have epistaxis from both nostrils, which was very hard to control. Bleeding would continue through the packing. He was given six transfusions, Vitamin K, and crude liver by injection. He was also taking calcium and ceanothyn, and any other medieation that we could think of to increase blood clotting He received Congo Red and oxalic acid intravenously during the nosebleeds Radiation over the spleen was employed.

6-8-41. The temperature which he had been running subsided, the nosebleeds stopped and he was feeling improved. On account of his financial circumstances he was allowed to leave the hospital.

6-11-41. He remained in bed at home and continued about the same for five days, when he began to have a return of the nosebleeds, with bleeding from the gums. Blood eount at this time (6-16-41) revealed 77,375 W. B. C., 83% lymphoblasts, 10 lym. eosin. 1, neutro. 6, R. B. C. 3,440,000. He now went rapidly downhill, with epistaxis, oozing from the gums and an occasional emesis of blood. The spleen was now so large that it was painful and it was necessary to keep him under narcosis.

6-23-41. He gradually lapsed into a coma and passed away.

SUMMARY

Two eases of aente lymphatic leukemia are reported. Severe hemorrhage following trauma seemed to have been the predisposing factor in these cases.

Thomas-Davis Clinic.

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Cyclopropane - A Safe Anesthetic Agent

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Los Angeles, Calif.

THE following remarks reflect solely the conclusions arrived at by one individual, which conclusions may be, and probably are, subject to marked contradiction and difference of opinion. However, these conclusions are based on a study of recent literature and a personal experience of over three thousand Cyclopropane administrations.

Cyclopropane is a colorless, saturated hydrocarbon gas of sweet odor and taste; non-irritating to the respiratory system if not too concentrated; molecular weight 42.05; specific gravity 1.46 and liquifies at five atmospheres at ordinary temperature. It was first prepared by Freund in 1882 and its anesthetic properties were discovered by Henderson and Lucas, by animal experimentation, in 1929. Ralph M. Waters and his co-workers at the University of Wisconsin conducted the first clinical experimentation during 1932 and 1933 and presented the first clinical report at the Congress of Anesthetists in Chicago in the fall of 1933. In the past few years the literature has been so voluminous that anything like a complete review would be impossible in the time allotted.

Cyclopropane, when properly handled by an experienced anesthetist, is a safe anesthetic; probably, considering both immediate and remote effects, the safest general anesthetic we possess to date. In fact, with the exception of one drawback, which will be discussed later, this agent approaches our dream of an ideal anesthetic.

Cyclopropane must be administered by the closed CO_2 absorption method only—its cost would make the open, or semi-closed, method prohibitive to the average patient. Thus its high cost proves an advantage as it forces the use of the closed method, which has been one of the marked advances in anesthesia of the past few years. When used by this method it is no more expensive than other gas anesthetics. The gas is not altered by the alkali in the absorber. Cyclopropane is a very potent agent producing analgesia in concentrations of from 3 to 5% in oxygen; unconsciousness with mixtures of 6 to 8% and surgical anesthesia in concentrations of 25 to 30%. The induction time is rapid—from 2 to 3 minutes, and this may be reduced with premeditation. Its diffusion is rapid and the fact that it is not altered or combined in the body makes its elimination by way of exhalations very rapid, the major part being eliminated in a period of ten minutes, but complete desaturation may take several hours.

The fact that Cyclopropane is efficient in such low concentrations is a safety factor because, in the presence of a free airway, there is no danger of the development of an anoxemia with the attendant dangers of cerebral anoxia and permanent cortical damage. Many such cases have been reported with nitrous-oxide and I personally have seen two deaths and one permanent personality change following prolonged nitrous-oxide dental anesthesias with their long-continued partial cerebral anoxias.

Cyclopropane follows the general course of all inhalation anesthetics. It diffuses from the alveolar air to the blood stream and is distributed to the body tissues. As it is estimated that all the blood in the body passes through the lungs in approximately 1½ minutes, it is readily seen how quickly a rapidly diffusible agent will saturate the blood and be made available to body tissues. Nervous tissue is the first to become saturated, and fat, the last.

The signs of anesthesia are the same as other inhalation anesthetics, but due to its rapidity of action one must be very alert to detect these signs as the patient passes through the various stages of anesthesia.

Careful experimental work as to the effect of cyclopropane on the blood may be summerized as follows: Combining power decreased 2—7%; no significant change in diabetes; total base may increase slightly. Glucose is increase 8 to 30 mgm. per 100 c.c. Nonprotein nitrogen and urea are increased during anesthesia but with an almost immediate return to normal after anesthesia. Phosphates are increased for several hours then return to normal. With concentrations of 16 to 20 mgs. per 100 c.c. for anesthesia, the concentrations in venous blood equals arte-

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rial blood in 15 minutes and concentration in fetal blood equals maternal blood in 15 minutes of anesthesia. Potassium ions decreased in plasma. Sodium ions may decrease slightly. Lactic acid increases slightly. Contrary to some clinical observations, the clotting and bleeding time is unchanged. There is an increase in leucocytes with a maximum in 8 hours and a return to normal in 48 hours; poly morphs increase relatively and absolutely; no change in platelets; no change in number of volume of red cells nor hemoglobin; 2½ times more drug in red cells than plasma. The oxygen content is increased but capacity unchanged. Peripheral venous blood arterialized.

Effects on the central system: There is an early depression of the cortex which accounts for the rapidity of induction; there is some depression of the respiratory center with slowed respiration; in deep anesthesia the respiratory center fails before circulation, which is a safety factor, as it gives the watchful anesthetist time to overcome approaching danger. The cough, swallowing and vomiting reflexes are abolished at the beginning of surgical anesthesia. There is no significant change in the vasomotor system. There is little change clinically, in intraeranial pressure.

EFFECTS OF CYCLOPROPANE

I shall now try to give a short summary of the effects of Cyclopropane on the various important organs of the body. These findings are from various experimental and clinical reports. The respiratory system: Mucous membranes are not irritated unless high concentrations are used, but there is a decreased action of the cilia. If the mucous membranes were irritated with a consequent increased secretion, this decreased ciliary action would be a disadvantage, but, as there is no such increased secretion, clinically there seems to be no effect. Reflex spasm of the larynx is sometimes bothersome but is usually due to a too concentrated mixture and can be overcome by an increased percentage of oxygen or the addition of helium. Respiratory movements are decreased in deep anesthesia and apnea may develop. This is not a disadvantage as, in the presence of a free air-way, it is very simple to breathe for the patient by bag pressure until spontaneous respiration is resumed. In fact some anesthetists, following the Guedel technique, deliberately place the patient in apnea and carry on with artificial respiration by bag pressure. This gives a relaxation comparable to spinal anesthesia, but, personally, I prefer to have the patient do his own breathing.

Heart: The rate is, as a rule, decreased but the cardiac output is increased. Arhythmas are of fairly common occurrence but are readily controlled by increasing the oxygen in the mixture. One point should be stressed with reference to the heart—it is dangerous to use ephedrine or adrenaline, especially in light cyclopropane anesthesia because it enhances the irritability of automatic tissue and may result in ventricular fibrillation Blood pressure is only slightly effected unless respiratory depression has been allowed to develop.

Liver: Cyclopropane has little or no effect on liver function either clinically or experimentally. There is no evidence of dysfunction by dye test and no hystological changes have been reported.

Kidneys: Secretion of urine is suppressed during anesthesia but is followed by a post-anesthetic polyuria. I have seen no reports of hystological changes.

Clinically, cyclopropane is without question the most efficient general inhalation anesthetic agent we have today. From the patient's standpoint its rapid induction makes it pleasant to take. It gives, as a rule, the most profound relaxation of any of the inhalation anesthetis except chloroform, which has too many disadvantages to be considered; this relaxation at times approaching that of spinal anesthesia. It is quickly absorbed and rapidly eliminated.

DISADVANTAGES

Cyclopropane, however, has one disadvantage which has kept it out of many hospitals and localities throughout the country. Cyclopropane is explosive—so are all other inhalation anesthetics with the exception of chloroform and nitrous oxide. The first of these exceptions has caused many times more deaths, immediate and remote, than have been reported from cyclopropane explosions, but these deaths are not spectacular enough to draw front-page headlines. The second exception, nitrous oxide, is inefficient for surgery requiring any degree of relaxation unless ether is added, when it becomes a more dangerous explosive than cyclopropane. The dangers of explosion can be largely eliminated if ordinary precautions are used such as

elimination of open flames, cautious use of the cautery and so forth. The great danger is from the least understood cause—static spark. By the use of an intercoupling device this may be reduced to a minimum but will always be present to some extent, being more dangerous in dry weather. A high relative humidity in the operating room, above 65%, will tend to diminish the danger of static spark. Also care should be taken by anyone entering the operating room to discharge any static they may carry at a distance from the danger area, that is, an area of from one to one and one-half feet from the closed system mask. No woolen clothes should be worn in the operating room and no rubber soled shoes.

Because thousands of people are killed yearly from automobiles, should we abandon their use? Because a few spectacular accidents have occurred, should we deprive the public the advantage of this most efficient anesthetic agent?

In closing I will state definitely that, all things considered, cyclopropane will continue to be my choice of inhalation anesthetics until a better one is given us.

724 South Orange Drive.

AMERICA AT WAR

RECOMMENDATIONS TO ALL PHYSICIANS WITH REFERENCE TO THE NATIONAL EMERGENCY

All inquiries concerning the Procurement and Assignment Service should be sent to the Executive Officer, 5654 Social Security Building, Fourth and Independence avenues S. W., Washington, D. C.

I. Medical Students

A. All students holding letters of acceptance from deans for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters or have letters presented for them by their deans to their local boards of the Selective Service System. This step is necessary in order to be considered for deferment in class II-A as a medical student. If local boards classify such students in class I-A, they should immediately notify their deans and if necessary exercise their rights of appeal to the board of appeals If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the state director and if necessary to the national director of the Selective Service System. These officers have the power to take appeals to the President.

B. Those junior and senior students who are disqualified physically for commissioners are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools who have not done so should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H. V. (P.) of the United States Navy Reserve, the choice as to Army or Navy being entirely voluntary. Applications for commission in the Army should be made to the corps area surgeon of the corps area in which the applicant resides, and applications for commission in the Navy should be made to the commandant of the naval district in which the applicant resides. Medical R. O. T. C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, on graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least twelve months of internship.

II. Recent Graduates

On successful completion of the medical college course, every individual holding commission as a Second Lieutenant, Medical Administrative Corps, Army of the United States, should make immediate application to the Adjutant General, United States Army, Washington, D. C., for appointment as First Lieutenant, Medical Corps, Army of the United States. Every individual holding commission as Ensign H. V. (P.) U. S. Navy Reserve, should make immediate application to the commandant of his naval district for commission as Lieutenant (J. G.) Medical Corps Reserve, U. S. Navy. If appointment is desired in the grade of Lieu-

tenant (J. G.) in the regular Medical Corps of the U. S. Navy, application should be made to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

III. Twelve Months' Interns

All interns should apply for a commission as First Lieutenant, Medical Corps, Army of the United States, or as a Lieutenant (J. G.), United States Navy or Navy Reserve. On completion of twelve months' internship, except in rare instances in which the necessity of continuation as a member of the staff or as a resident can be defended by the institution, all who are physically fit may be required to enter military service. Those commissioned may then expect to enter military service in their professional capacity as medical officers; those who failed to apply for commission are liable for military service under the Selective Service acts.

IV. Hospital Staff Members

Interns with more than twelve months of internship, assistant residents, fellows, residents, junior staff members and staff members under the age of 45 fall within the provisions of the Selective Service acts, which provide that all men between the ages of 20 and 45 are liable for military service. All such men holding Army commissions are subject to call at any time and only temporary deferment is possible, on approval of the application made by the institution to the Adjutant General of the United States Army certifying that the individual is temporarily indispensable. All such men holding Naval Reserve commissions are subject to call at any time at the discretion of the Secretary of the Navy. Temporary deferments may be granted only on approval of applications made to the Surgeon General of the Navy.

All men in this category who do not hold commissions should enroll with the Procurement and Assignment Service. The Procurement and Assignment Service under the executive order of the President is charged with the proper distribution of medical personnel for military, governmental, industrial and civil agencies of the entire country. All those so enrolled whose services have not been established as essential in their present capacities will be certified as available to the Army, Navy, governmental, industrial or civil agencies requiring their services for the duration of the war.

V. All Physicians Under Forty-Five

All male physicians under 45 are liable for military service, and those who do not hold commissions are subject to induction under the Selective Service acts. In order that their service may be utilized in a professional capacity as medical officers, they should be made available for service when needed. Wherever possible, their present positions in civil life should be filled or provisions made for filling their positions, by those who are *(a)* over 45, *(b)* physicians under 45 who are physically disqualified for military service, *(c)* women physicians and *(d)* instructors and those engaged in research who do not possess an M. D. degree but whose utilization would make available a physician for military service.

Every physician in this age group will be asked to enroll at an early date with the Procurement and Assignment Service. He will be certified for a position commensurate with his professional training and experience as requisitions are placed with the Procurement and Assignment Service by military, governmental, industrial or civil agencies requiring the assistance of those who must be dislocated for the duration of the national emergency.

VI. All Physicians Over Forty-Five

All physicians over 45 will be asked to enroll with the Procurement and Assignment Service at an early date. Those who are essential in their present capacities will be retained and those who are available for assignment to military, governmental, industrial or civil agencies may be asked by the Procurement and Assignment Service to serve those agencies.

The maximal age for original appointment in the Army of the United States is 55. The maximal age for original appointment in the Naval Reserve is 50 years of age.

RECENT APPOINTMENTS

President Roosevelt has appointed Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense, to be a member of the Health and Medical Committee of the Office of Defense Health and Welfare Services. Dr. Irvin Abell, Louisville, Kentucky, chairman of the Committee on Medical Preparedness of the American Medical Association, is chairman of the Health and Medical Committee and other members are the Surgeon General of the U. S. Army, Major

General James C. Magee; the Surgeon General of the U. S. Navy, Rear Admiral Ross T. McIntire; the Surgeon General of the U. S. Public Health Service, Dr. Thomas Parran, and the chairman of the Division of Medical Sciences, National Research Council, Dr. Lewis W. Weed, Baltimore. The Office of Defense Health and Welfare Services is a part of the Office for Emergency Management which in turn is part of the Executive Office of the President. The director of the ODHWS is Paul V. McNutt, who is also Federal Security Administrator.

EMERGENCY UNITS MOBILIZE

Organization of Emergency Medical Services is gaining momentum throughout the country, a roll call held by the Medical Division in connection with the observance of Civilian Defense Week, November 11 to 16, shows.

Outstanding physicians have been designated as chairmen of health and medical committees on thirty State Defense Councils. In twenty-three of these states a physician has also been appointed as Chief of Emergency Medical Service.

The roll call reveals that 478 city and county Chiefs of Emergency Medical Service have been appointed; Emergency Medical Field Units have been organized in 383 hospitals and an additional 24 have been established unrelated to a hospital. In Massachusetts, Vermont, New York, Delaware, Pennsylvania and Arizona, an Emergency Medical Service has been organized on a state-wide basis. In California, Los Angeles city and county and San Francisco city and county also have well planned organizations for the administration of emergency medical service.

In Massachusetts 351 Chiefs of Emergency Medical Service have been appointed; in Vermont 38 local chiefs have been designated and in New York State 72 county and local chiefs are now at work. New York City has a Chief of Emergency Medical Service for the entire city and an assistant chief for each of the five boroughs. Pennsylvania is rapidly achieving complete state organization, 119 local chiefs of medical service having been appointed. Emergency Field Units have been set up as follows: 283 in Massachusetts; two in Vermont; 73 in New York State; 24 in Delaware; one in Virginia, and 24 in California.

The Red Cross reports that more than 1,000,000 persons will be trained this year in first aid, an increase of over 400,000 above last year. Although this work has only recently been organized, sixty-one chapters are giving nurses' aide courses. Twenty-eight classes were being conducted by 74 instructors and 118 students had completed courses and received certificates from the Red Cross. To date, 343 aides have been placed on duty in various hospitals and have given 8,246 hours of service. One hundred and seventy-seven hospitals and other institutions are being used for the training or the service of nurses' aides or for both purposes.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

The El Paso County Medical Society met February 9, 1942, at Hotel Cortez. This program was given: "Some Observations on the Pathogenesis of Appendicitis," Dr. L. O. Dutton. Discussed by Dr. Jesson L. Stowe, Dr. John L. Murphy and Dr. J. Leighton Green.

In a recent communication to members of the El Paso County Medical Society, Dr. F. O. Barrett, president, had this to say:

We have bought a war. It *must* be paid for.

You are aware of the effort to pay some of this cost by the sale of Defense Bonds. Soon you will be called upon to sign a pledge to do your part in this. In doing so remember:

1. El Paso County's share to be raised is $7,000,000 for 1942.
2. This is 10% of our net income.
3. This is not a gift—it is an investment. A bond is better than a tax receipt.
4. This is our most effective way of preventing inflation.
5. This MUST effort for Victory can have no limit.
6. Each of us MUST purchase bonds to the limit of our ability.

Please help your committee by facilitating their contact with your employes.

The regular meeting of the El Paso County Medical Society was held in the Tea Room of the Hotel Cortez January 26, 1942, presided over by Dr. Barrett, president.

The program committee announced that they were disappointed in the speaker that they had scheduled for this meeting, therefore this program was hurriedly arranged these past few days. The following clinical cases were presented for diagnosis:

1. Presented by Dr. Laws. A presumable case of pulmonary tuberculosis with pathological fracture of the clavicle. Discussion by Dr. Homan, Sr., Dr. Waite, Dr. Cummins, Dr. Holt and Dr. Hart. The final diagnosis: Carcinoma of the bones and lungs.

2. Abscess of the lungs. Presented by Dr. Laws. Sputum negative for T. B. Marked improvement with collapse therapy. Discussed by Dr. Homan, Sr., Dr. Waite, Dr. Dutton and Dr. Rawlings.

3. Presented by Dr. Curtis. Tumor of the kidney. Crossly diagnosed as cystic, microscopically adeno carcinoma. Discussed by Dr. Waite and Dr. Hart.

4. Presented by Dr. Robert Thompson. Case of stone and pyelonephrosis of kidney. Discussed by Majo Dodson.

A motion was made by Dr. R. B. Homan, Sr., seconded by Dr. Rawlings, to make Dr. H. T. Safford an honorary member for life of the El Paso County Medical Society. Unanimously carried. Dr. Murphy stated that he would also like to have the Society give a big hand for three other of the older members: Dr. Laws, Dr. Waite and Dr. Homan, who were active in their practice and the work of the County Medical Society. Heavy applause. A committee consisting of Dr. Waite, Dr. Homan and Dr. Brunner was appointed by the chair to call on Dr. Safford and acquaint him with the action of the Society.

A vote on changing the dues was not taken because it was stated that the amendment was not correctly worded in the notice sent out. The secretary was instructed to direct all inquiries as to the citizenship of physicians practicing in El Paso to the Board of Censors committee, the chairman of which is Dr. B. F. Stevens.

Reported by Charles F. Rennick, M. D., Secretary.

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

The regular meeting of the McKinley County Medical Society was held on Wednesday evening, January 28, 1942, at St. Mary's Hospital, Gallup, New Mexico.

A motion was approved by the members to supplement the presentation of scientific papers, at the regular meetings, with motion picture films. Drs. D. F. Monaco and V. Accardi were appointed to choose and procure suitable films to be shown.

The coordinator of the Gallup Council of National Defense is to be contacted by a committee from the Medical Society, to arrange definite plans for a Civilian Defense organization, in regard to the hospital, medical doctors and nurses in this community.

It was decided to institute a campaign of Public Health Education, by the local Society, to explain to the general public the importance of competent medical attention. Drs. W. D. Anthony and E. B. Beaver were appointed as a committee to arrange material for a series of articles to be published in the local newspapers.

A letter from the sheriff's office was read, thanking the members for their prompt cooperation at the time of the recent accident, near Gallup, which involved an army troop train.

An informal supper party was held on Satur-

day evening, January 17, at the El Navajo Hotel, by the Medical Society. Dr. D. M. MacCornack, who left this week to make his home in Boulder City, Nevada, and Dr. Watson, the retiring president, were the honored guests.

A medical paper was presented by Dr. Vincent Accardi on "Head Injuries." Its summary:

It was stated that head injuries were to be considered and method of treatment given, only so far as brain trauma was concerned.

A classification of brain injuries was made, stressing the point that any one of them, no matter how slight at the time of injury, may eventually lead to serious complications and even death.

Each of the brain injuries—concussions, contusions, epidural hemorrhages, subdural hemorrhages, lacerations of the brain, was discussed in detail. A careful watch of the patient was emphasized to ascertain the exact diagnosis and possible localization of site of injury, especially from the standpoint of treatment.

Surgical indications were given, and medical treatment was presented in all its varied forms, including treatment of shock, dehydration, sedatives, advisability of spinal punctures, etc.

Reported by William Dodd Anthony, M. D., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION

(Louis W. Breck, M. D., Associate Editor)

The most significant happening in the Southwestern Medical Association this winter has been the unfortunate death of Dr. LeRoy S. Peters of Albuquerque. Dr. Peters was ill for some little time preceding his death and was unable to attend the Southwestern Medical Association's meeting in El Paso in November. His absence was most conspicuous and his friends all missed him. Dr. Peters had always been a very active member of our Association and had held many offices in it, including the presidency for the year 1938. He was always counted on at the annual meetings to contribute constructive suggestions to the Soeiety and his personality always served to enliven the meetings. We will all miss one of the Association's staunchest supporters and one of our best friends.

At this particular time of the year the Association is usually the least active as far as its affairs are concerned because the annual meeting is out of the way and plans for the next meeting are only in the formative stage. Dr. C. A. Thomas of Tucson, our president, has as yet not announced definite plans for the 1942 session which is to be held in Albuquerque, but in the next issue of the Journal we will probably have something definite.

One thing of great importance at the present time is the question of dues. Our annual dues are $3.00 and are now due and payable and all the members have received their bills for this period. These should all be met as promptly as possible for the annual dues furnish the revenue for carrying on the activities of the Association which activities consist chiefly in planning and putting on the annual meeting.

There is considerable thought and discussion amongst the members of the Southwestern Medical Association as to what effect the war will have upon our organization. As yet there is nothing definite to announce along this line, but it is probable that some changes in the annual meeting will become necessary. The Executive Committee will work this out in the near future. One thing which is of great concern to all of us is the Journal "Southwestern Medicine" and the Board of Managers and the Editor have seen to it that there is no possibility of a hitch in the publication of the Journal. As many of the members know, our Editor, Maurice P. Spearman, M. D., is at the present time in the United States Navy. Fortunately he has an assignment which makes it possible for him to carry on the Journal in as good or better a manner than he did when he was in private practice, so that there is no concern from that standpoint. Apparently the position to which he has been assigned is permanent or at least semi-permanent and the Journal will continue in its present editorship. Steps were taken at the November, 1941, meeting of the Board of Managers of the Journal, and with the assistance of the present editor, to provide for a new editor immediately should the present editor have a change in his assignment which would make it impossible for him to carry on his duties. We are all very glad that Dr. Spearman will be able to carry on the work of editing the Journal in all probability for he has been doing an excellent job of it.

Reported by Louis Breck, M. D., Secretary.

MISCELLANY

AMERICAN COLLEGE OF SURGEONS ANNOUNCES APRIL "WAR SESSIONS"

Between April 1 and May 1, inclusive, the American College of Surgeons will hold one-day "War Sessions" on problems of military service and civilian defense for medical and hospital personnel, as follows:

Apr.	Place	States	Headquarters
7	Denver	Colorado, Wyoming	Cosmopolitan Hotel
10	Salt Lake City	Utah, Idaho	Hotel Newhouse
13	Portland	Oregon, Washington, Montana	Multnomah Hotel
16	San Francisco	Northern California, Nevada	Fairmont Hotel
18	Los Angeles	Southern California	Biltmore Hotel
21	Phoenix	Arizona, New Mexico	Westward Ho Hotel
24	Dallas	Texas, Oklahoma	Baker Hotel

The meetings open at 9:00 A.M. with panel discussions on treatment of war injuries for the medical profession and a forum on civilian defense as related to hospitals, led by a medical officer of the United States Office of Civilian Defense, for hospital personnel. From 10:45 to noon a joint meeting for physicians, surgeons and hospital representatives is held, with medical officers of the United States Army, the United States Navy, and the Office of Civilian Defense, as speakers. At the joint luncheon which follows, the Procurement and Assignment Service in relation to the medical profession and to hospitals, is discussed by Major Sam F. Seeley, Executive Officer, a specially appointed delegate. In the afternoon, panel discussions for the medical profession are held on treatment of wounds of soft parts and on fractures, and for hospital representatives on special problems incident to the war as affecting hospitals.

The dinner meeting and the panel discussions which follow on treatment of burns and prevention and treatment of shock, are for the entire group. The representatives of the army and the navy medical corps collaborate with civilian surgeons in leading these discussions.

Hospital associations and state and county medical societies are co-operating with the American College of Surgeons in conducting the sessions.

PRACTICAL METHOD OF STUDYING RHEUMATIC CASES

There are certain fundamental procedures that are necessary in order to classify and to study a case properly. These should be carried out before starting treatment, having tonsils removed, etc. The following procedures and their interpretations are suggested as being significant, but all may not be essential to make a decision regarding the proper treatment. The following plan of study is suggested. There are three general classes.

1. A complete history, especially regarding the onset of the disease, occupation family background, age, metabolic disturbances, glandular activity and infections, especially those of childhood.
2. A thorough physical examination.
3. A complete blood count: a secondary anemia is frequently present in rheumatic cases. A correction of this factor should obviously be made early in the case. The reason for the anemia may vary from a bleeding peptic ulcer to nutritional disturbances and rheumatic symptoms may be secondary.
4. Complete urinalysis to rule out kidney disturbances or systemic diseases which indicate the patient's general conditions, e. g., neuritis associated with diabetes.
5. Sedimentation rate to aid in the diagnosis

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or to use as a comparison in estimating whether infectious processes are subsiding.

6. Basal metabolism to determine whether hypothyroidism or hypometabolism is present as a contributing factor. In this connection it should be mentioned that a low rate of ovarian activity may be present also, as Francis Hall and others have pointed out. This may have a bearing on the basal rate.
7. Blood chemistry studies, especially total and non-protein nitrogen, cholesterol, C vitamin level and uric acid, as gout is a very common disturbance.
8. Stool examination; this should include cultures, examination for parasites, undigested food and blood.
9. Ewald test meal; many patients are discovered to have an absence of free hydrochloric acid, whose digestion and nutrition improve with its addition.
10. X-rays:
    a. Teeth for evidence of infection.
    b. Sinuses if indicated.
    c. Colon fluoroscopy for diverticulae, etc.
    d. Certain joints if unusual bony changes are suspected.
11. Bacteriology:
    a. Cultures from nasopharynx, tonsils, and sinus drainage, if present.
    b. Cultures from aspirated joints.
    c. Cultures from the prostate and cervix.
    d. Blood cultures in certain cases.
    e. Cultures from rectal crypts.
12. Serology:
    a. Kahn or Wasserman.
    b. Complement fixation if indicated.

—Ill. Med. Jo.

INDUSTRIAL PHYSICIANS MEET

The American Association of Industrial Physicians and Surgeons, and the American Industrial Hygiene Association will hold their joint annual convention in Cincinnati from April 13 to 17, 1942. A program is in preparation in which important medical and hygienic problems associated with the present huge task of American industry will be presented and discussed in clinics, lectures, symposia and scientific exhibits. The central purpose of the

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meeting will be to provide a five-day institute for the interchange and dissemination of information on new problems as well as for the consideration of up-to-date methods of dealing with those that are well known. The industrial physicians have taken responsibility for the program of the first two and one-half days and the hygienists for the remainder of the five days, but most of the subjects chosen for discussion will be of interest not only to physicians, but equally so to industrial engineers, and executives.

REHABILITATION OF DISQUALIFIED REGISTRANTS

In order to have a basis for estimating the prevalence of defects among registrants for military service under the conscription act of 1940, the United States Public Health Service has reanalyzed certain results of the medical findings for the World War draft of 1917-18.

Twenty-one per cent were rejected for military service, thirty-one per cent were classified as not available for general military service (including the rejections), and fifty-two per cent had one or more recorded defects. These figures for the last war were summarized by Rollo H. Britten, senior statistician, and George St. J. Perrott, chief of division of public health methods, Public Health Service *(Public Health Reports, 56:2)*.

Defects per 1,000 drafted men in 1917-18 were:

Orthopedic impairments	213.16
Eye defects	61.01
Cardiovascular-renal diseases	50.20
Underweight	31.14
Hernia and inguinal rings	55.36
Tuberculosis (all forms) actual or suspected	24.74
Defective or deficient teeth	26.27
Nervous or mental diseases	24.53
Ear defects	15.45
Venereal diseases	46.77
Varicose veins, varicocele	8.75
Goiter	11.38
Hypertrophic tonsilitis	33.77
Arthritis and allied affections	3.48
Asthma	2.33
Other diseases or defects	53.56

These figures may be used as the basis for considering a program of physical rehabilitation of registrants disqualified for general military service under the conscription act of 1940.

—*Med. Record.*

MEDICAL RESERVE OFFICER SHORTAGE

The Army Medical Corps, already facing a shortage of several thousand in its peace-time reserve officer objective, encountered additional

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competition this week in the form of an appeal from the British Red Cross, with the approval of the President, for 1,000 young American doctors to help man British military and civilian hospitals.

Age limits and other requirements for service with the British Red Cross are reported to be approximately the same as those pertaining to the Medical Corps Reserve with the result that volunteers who go to England automatically diminish the chances of the Medical Corps filling its reserve procurement needs.

The Medical Department has made strenuous efforts in recent months to build up the Reserve Corps to the peace-time quota with some measure of success but the campaign is still far short of its goal, and, in fact, it was learned this week that resignations at the present time are exceeding new applications.

The British appeal, bolstered by the outspoken support of the President who said "service in this cause presents a splendid opportunity," is expected to seriously curtail applications for Medical Reserve commissions at the very time when they are most needed. The shortage that now exists in the peace-time procurement program will be considerably magnified should the Army be expanded rapidly or a state of emergency be declared to exist. The war-time quota would be much larger than the peace-time figure which the department is unable to fill at this time.—*Army and Navy Journal.*

AVERAGE PERCENTAGE OF WAR INJURIES OF ALL ARMIES IN THE WARS OF 1866, 1870-71, 1904-05, 1914-18

Head, Face and Neck	15
Dorsum and Spine	5
Chest	7
Abdomen	2
Pelvis	3
Upper Extremities	34
Lower Extremities	32
Eyes, Ears, Genitals	2
Total Percentage	100

—*Mil. Surg.*

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BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

[NOTE:—Three books reviewed in February issue were not identified as to their publisher. The books: "Synopsis of the Preparation and Aftercare of Surgical Patients; "Microbes Which Help and Destroy Us;" "Synopsis of Genitourinary Diseases." The publisher: C. V. Mosby Co., St. Louis.]

A PRIMER ON THE PREVENTION OF DEFORMITY IN CHILDHOOD by
Richard Beverly Raney, B. A., M. D. Associate in Orthopaedic Surgery, Duke University School of Medicine, Durham, N. C. In Collaboration with
Alfred Rives Shands, Jr., B. A., M. D. Medical Director, Alfred I. duPont Institute of the Nemours Foundation, Wilmington, Delaware: Visiting Professor of Orthopaedic Surgery, University of Pennsylvania School of Medicine, Philadelphia, Pennsylvania. Pp. 475 with index. Fabrikoid. National Society for Crippled Children in the United States of America, Inc. Elyria, Ohio.

This is excellent book. It is a good source for disseminating information concerning the causes and the prevention of deformity. It is written in such language that it can reach all those concerned. It is valuable to other lay people associated with this type of work, it should be invaluable to nurses, social workers, teachers, and all those who have to deal with crippled children or those dealing with diseases of children which may cause crippling deformities. It is written in crear, concise, simple language and contains a glossary of medical terms which tends to clarify the subject and make the reading interesting. This book should prove valuable to the general practitioner who can turn to it for advice when he is confronted by some crippling condition. It is also useful for those who do Orthopaedic Surgery as a reference book.

The first portion of the book concerns those diseases and conditions which are likely to lead to a deformity. The prevention of these diseases is taken up. In the second portion of the book a regional classification of deformities is taken up and every condition which may produce deformity is fully described and the methods of preventing the deformity are clearly elucidated. This book is highly recommended.

W. Compere Basom.

EDITH CAVELL, by Helen Judson: The Macmillan Company, New York; 1941.

This book, of about 300 pages, presents a succinct, apparently reliable story of the life and death of Edith Cavell. It does more. It gives the reader an intimate acquaintance of the

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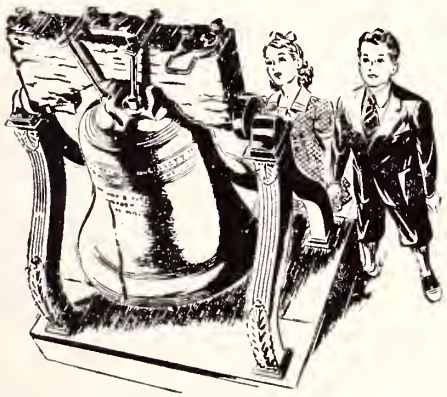

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status of nursing in Belgium as late as the start of the present century. It gives also a picture or a leading gruff, quick-tempered, well-intentioned, Belgian surgeon, Dr. Depage, and of his diplomatic, genial, forceful wife who compensated for many of his short-comings. Then, too, one gets from the book an excellent understanding of the behavior of the Germans in their occupation of Belgium as well as of the Belgians and their passive resistance to the demands of their conquerors.

Edith Cavell was an honest individual; and an individual she really was! Reared as she was in an English vicarage family, with all the natural restrictions which went with the most idealistic set-up of such, she could not be otherwise. Hers was a true desire to serve suffering humanity in a most bountiful manner irrespective of selfish desires and comforts.

The first portion of the book dealing with the early life of Edith shows plainly that the author centered mainly upon presenting the heroine's life in Belgium, especially upon her activity in the war. As a result, the early chapters seem, to me, a trifle dull. None of us is so much interested in these early years as in the last ones, but the book should be able to hold one's interest from the start.

Miss Cavell's early life may be said to be ordinary for England except for the rigidity of training in morals and ethics and in religion; her education was more than customary for young women in her stratum of society. She early took a position as governess in a prominent Belgium family. There she acquired perfect use of the French language and came to know Belgians' customs and manners of life. After several years in this position she returned to England and took training as a nurse in order to be of greater assistance to humanity.

Because of her acquaintance with Belgium and the people and their language, her nurse's training and her high ideals, she was selected to head the first nurses-training school established in Belginm. In this work she had many trials and tribulations; these make interesting and instructive reading. Then came the war.

She cared for soldiers of all nationalities who came her way and needed care; who is there to criticise her if her sympathies were mostly with those of the allied armies. After the Germans over-ran Northern France and Belgium many

allied soldiers, often left on the battlefield as dead, wandered in hiding from place to place, even though commanded to report to German police-headquarters under penalty of death for failure to comply. Hundreds, perhaps thousands, failed to report.

Miss Cavell was one of the many who assisted these soldiers to escape usually by way of neutral Holland. In her unfair "inquisitional" trial without benefit of counsel she frankly admitted her part. The author propounds the theory that, even with the most rigid interpretation of the German military code her execution was wholly illegal.

The story is more than worth reading; it is entertaining; it is instructive. It is an excellent portrayal of the high character of Edith Cavell's acts and bravery.

The publisher's art is superb. The author's style is most readable. She will be glad to have her attention called to two errors: on page 270, line 13, the word "women" is used where "woman" was intended; on page 281, third line of second paragraph "have" is used where "has" would be the correct form. These detract not one whit. —*O. H. Brown.*

MAGIC IN A BOTTLE, by Milton Silverman, Ph. D.: The Macmillan Company, New York; 119417

Everyone—nearly—of the laity as well as physicians has heard of morphin, quinin, cocain, sulfanilamide, aspirin, vitamins and other drugs of which the author writes; but who even of the physicians knows the human interest stories of the discovery and development of each of them? Certainly few of us.

Doctor Silverman is evidently both a scientist and a writer. He knows how to make entertaining facts entertaining. His first training was probably in writing. The laymen and the physicians will enjoy this book and the physicians may safely recommend it to their enquiring friends and patients.

The romance of the struggle with the accompanying heartaches and tribulations associated with the discovery and perfecting of each of the drugs is comparable in a measure to that of quinin:

King Phillip IV of Spain appointed the Count of Chinchon to the control of all of South America. He took a new wife and departed for his new job. They encountered mosquitoes as well as new friends. The Countess developed malaria. Her life was despaired of- news of her illness

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spread far and wide. From a distant point one day came a sweaty tired Indian runner bearing a package containing gray-brown bark from a certain kind of tree recommended by the Indians to cure fevers prevalent in their country. Instructions for taking the medicine were enclosed. The Countess was given several doses. Lo! and behold! She improved.

The bark was taken to Europe. Its worth was proved. Then started long years of intrigue and trickery to obtain young quinaquina trees and seeds to plant elsewhere. The Peruvians and others of South America strove to maintain a monopoly of this wonderful bark so much sought after. The story of isolating the pure quinine from the bark was long and fascinating.

Thus, to a great extent, has it been with most other drugs. So far as my knowledge goes, the facts and truths presented are such. I repeat, they are readable and entertaining.

—*O. H. Brown.*

BERKELEY MOYNIHAN, Surgeon, by Donald Bateman; with a preface by Lord Moynihan, New York. The Macmillan Company; 1940. $4.00.

Berkeley Moynihan was certainly a great surgeon; the author leaves no doubt of that. He was so imbued with this idea that nearly every sentence he writes exudes his praise. One wonders would not the reader be more impressed by a recitation of the facts of the great man's life than by being told how wonderfully wonderful the man was in everything he undertook.

Moynihan came from an army family and he had intended to follow in this line. His mother ultimately had her way and thence came the surgeon. He forever remained a provincial surgeon of England but was famed the world over.

Dr. Bateman had known Moynihan intimately, having been in the family home a great deal as a friend of the son; because of his own training in surgery he has been able to pass judgment or to present in a manner that others may judge of the remarkable work of the subject of the monograph.

The book is interesting and inspiring.

—*O. H. Brown.*

MODERN METHODS OF IMMUNIZATION

Physicians who are concerned with the immunization of infants and children have as their goal the use of materials which will not sensitize the patient and the utilization of routes of administration that cause least discomfort. Definite assistance toward these objectives is provided by use of combined antigens in the opinion of a recent observer (J. Florida M. A., 28:330, 1942). The author has employed Combined Diphtheria Toxoid-Tetanus Toxoid, Alum Precipitated (Lilly) for the last three years without any untoward reactions.

The combination of diphtheria and tetanus toxoids is effected by mixing suitable amounts of the respective toxins which have been detoxified by the use of formaldehyde, and precipitating from this combination with alum the diphtheria and tetanus toxoids. The individual toxoids are tested for toxicity prior to mixing, and the combined alum precipitated toxoid is tested for toxicity after precipitation. Potency is determined by injecting guinea pigs with a human dose. After four weeks the blood serums of these animals must show at least 2 units of diphtheria antitoxin and 2 units of tetanus antitoxin per cubic centimeter of blood serum.

Should exposure to either diphtheria or tetanus occur before immunization against each disease is completed, the usual procedures for immediate protection of unimmunized subjects should be considered. The combined toxoid is not for treatment, it is a prophylactic measure of active immunization against diphtheria and tetanus.

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Superintendent

AMERICAN COLLEGE OF SURGEONS

WAR SESSION - HOSPITAL CONFERENCE

ARIZONA AND NEW MEXICO

Tuesday, April 21, 1942
Westward Ho Hotel - Phoenix

PROGRAM

9:00-10:30 a. m.

Forum: Civilian Defense as Related to Hospitals.

10:45 a. m.-12:15 p. m.

Joint Meeting, Physicians, Surgeons and Hospital Representatives:

The Organization and Functions of the Medical Department of the United States Army.

The Organization and Functions of the Medical Department of the United States Navy.

The Doctor and the Hospital in Civilian Defense.

12:30-2:00 p. m.

Joint Luncheon, Physicians, Surgeons and Hospital Representatives:

Address: The Procurement and Assignment Service.

2:15-5:00 p. m.

Panel Discussion: Special Problems Incident to the War as Affecting Hospitals.

Opening Statement: Hospitals and the War.

Organization of the Hospital for Civilian Defense.

The Procurement and Assignment Service and the Hospital.

Priorities and the Problem of Obtaining Hospital Equipment Furnishings and Supplies Essential to Rendering Adequate Services to the Patient.

Maintaining Adequate Professional and Non-professional Personnel During Enlistment in the Military Services and Industrial Expansion.

Maintaining Standards of Hospital Service During the War.

Meeting the Increasing Costs of Hospital Service.

Conservation During Wartime as Applying to Hospital Personnel Labor and Supplies of All Kinds.

6:00-7:30 p. m.

Dinner for Physicians, Surgeons and Hospital Representatives.

7:30-8:00 p. m.

Activities of the American College of Surgeons and Their Relation to the Defense Program.

8:00-10:00 p. m.

Panel Discussion: Treatment of Burns.
Prevention and Treatment of Shock.

Chairman: Dr. E. Payne Palmer Phoenix.
Secretary: Dr. Victor S. Randolph Phoenix
Counselor: Dr. C. A. Thomas Tucson.

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velopment in the production and application of vitamins and hormones.

Dr. Darby, who has been with the Department of Biochemistry of the College of Physicians and Surgeons for the past seven years as research associate, is a specialist there on vitamins and hormones, achieving wide attention for his work on the extraction and physiology of sex hormones.

Among other distinctions, Dr. Darby is noted as the discoverer of the existence of Vitamin D in plant life, and for his spectographic research on vitamins A, D and K. He originated the system, widely used by the Department of Agriculture, of heat treatment for the destruction of harmful insects.

Announcement of Dr. Darby's new activities was made by Charles F. Kieser, Vice President of The Borden Company and President of The Borden Vitamin Company, a division that has been expanding its activities widely in the production of vitamins.

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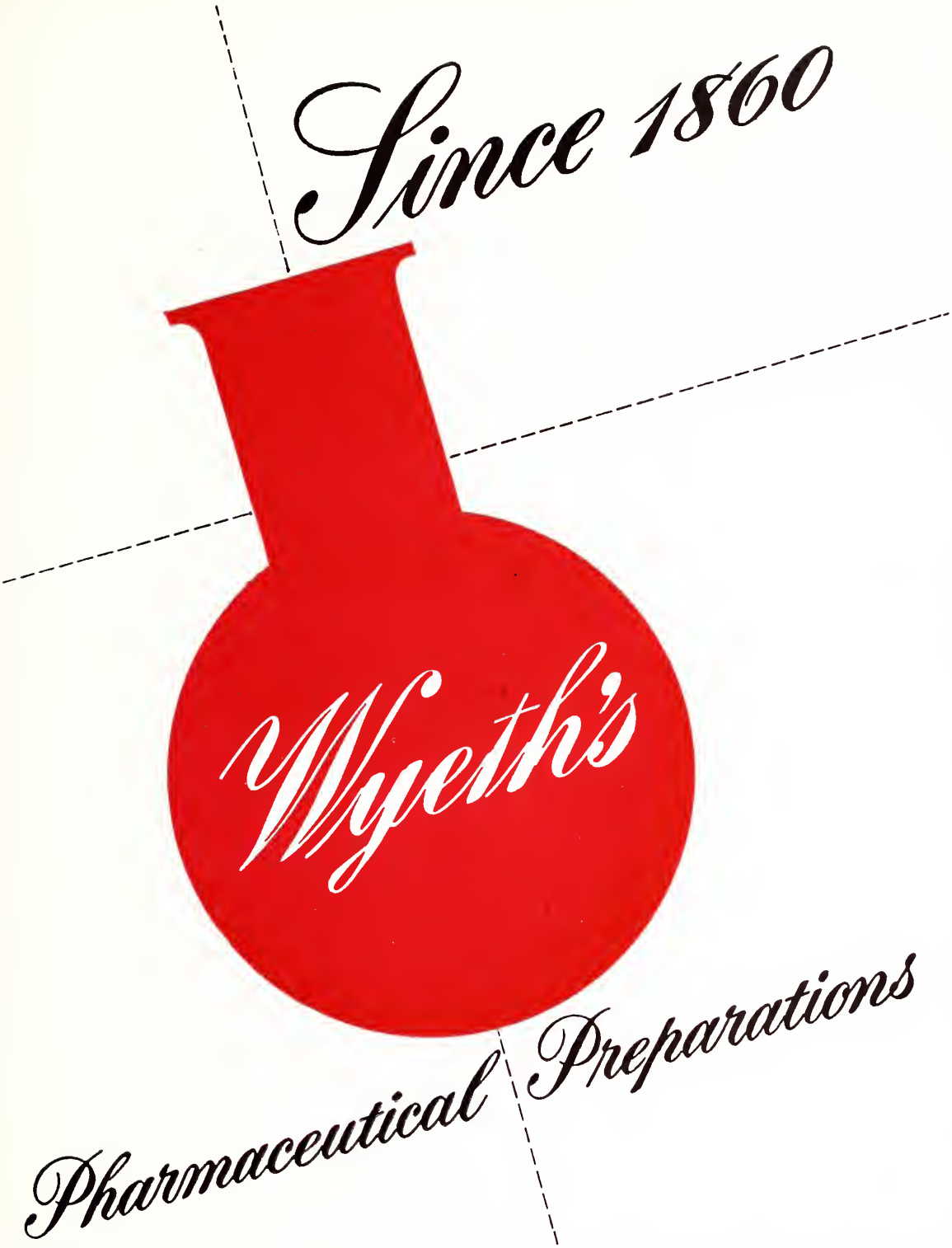

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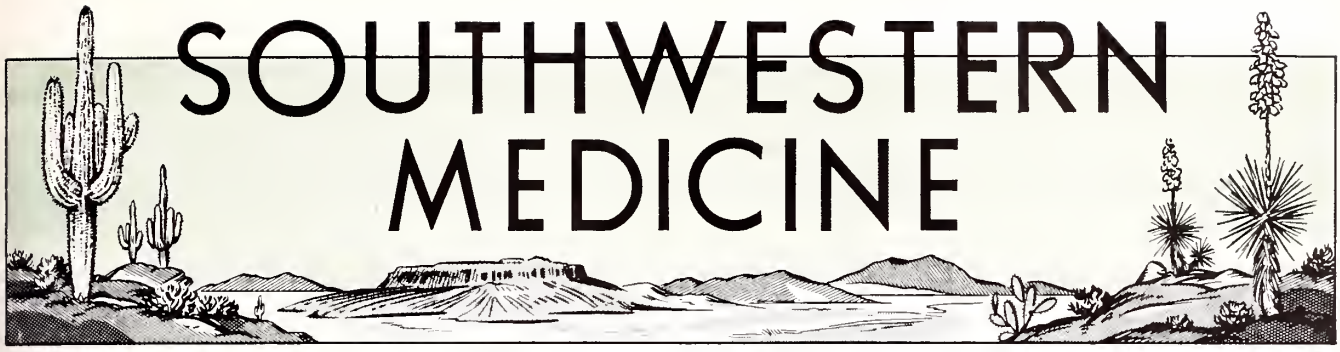

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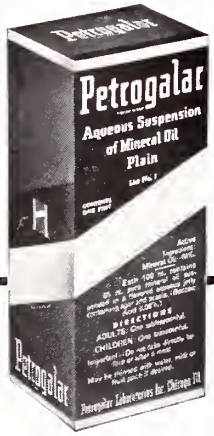

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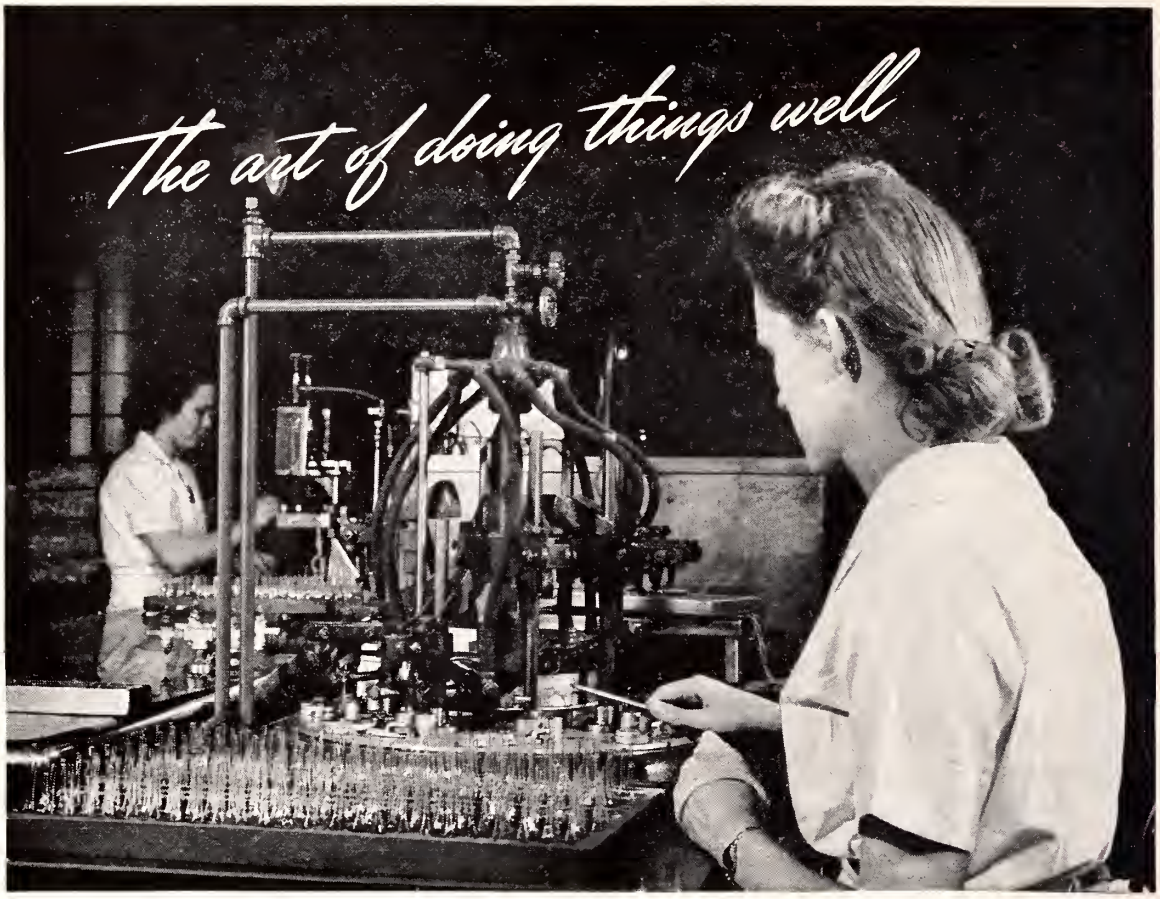

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Back to "Civvies"

Granted that it may be a bit premature to begin definite planning as to what we'll do after the war, nevertheless it harms no one to indulge in hopes and tentative schemes for improvement. Many physicians in the armed services have found that the role of the medical officer differs greatly from that of the civilian practitioner. And they have had cause to speculate as to the difficulties likely to confront them when they shed their uniforms for "civvies" after the enemy is beaten. Perhaps it is not too early to lay plans, at that. At any rate, we rather like what the editor of California and Western Medicine has to say:

The exigencies of modern day warfare, both at the front, and sometimes even in bombed civilian areas, are not such as make possible the carrying on of medical service with all the facilities, conveniences and hospital accessories, usually in vogue, in and under peacetime environments and conditions.

Consider, also, whether it may not be possible, should the armed forces need their services, that recent graduates may be called into service without intern training? Years ago, there were few of such internships, and yet the people lived!

And if changes as have been outlined above could become operative, may it not be profitable for organized medicine to study plans whereby colleagues in military service—when they return from military duties—will have made available to them opportunities for 3, 6, 9 or 12 month refresher courses in medical schools, designed to permit them again to take up and with greater ease, the problems of civil practice?

The Federal Government, during recent years, has been providing facilities and money grant-in-aid for analogous instruction to physicians who have been preparing themselves for public health work. When the war is over, a grateful Government might well consider a similar procedure, and reward the physicians who will have kept its armed forces fit for service at the front. To some readers, this may seem to trench somewhat into the domain of state medicine. If that be so, then organized medicine itself may wish to be called upon to provide the funds for such work. At the present time, who knows? Are not such post-war medical problems worthy of consideration?

Sino-Bronchial Disease

It has long been known that infection of the paranasal sinuses sometimes leads to subsequent involvement of the tracheo-bronchial tree. Many workers in the fields of rhinology and internal medicine are aware of the problem thus posed, and have devoted study to it. Egbert[1] recently reviewed "Sino-bronchial" disease, concluding that the condition called for cooperation between the rhinologist and the internist. To the author's assumption that infected material inhaled from the upper nasal passages into the trachea is part of the mechanism of the disease should be added two other possible pathways. Extension of the infection from sinus to bronchi may take place along the lymphatic route, and also via a submucous path, from venule to venule. With at least three avenues open, it is remarkable that more cases of stubborn infection do not develop as a complication of sinus disease, which affected some 1,150,000 persons in the United States in 1935-36[2].

Egbert states that "early diagnosis of sino-bronchial disease, ascertaining the underlying

cause and making an effort to eliminate it before permanent damage is done, is as desirable as a diagnosis of incipient tuberculosis or of cancer in the operable stage." The author further points out that "The incipient stage is tracheitis, first acute and then subacute manifested by the dry, incessant, spasmodic cough. The moderately advanced stage is the involvement of the entire bronchial tree. There is more aggravation of cough, prolonged fits of the dry cough in turn exciting a bronchorrhea until a vicious circle is attained. This stage is subacute in character. With this stage the exacerbation may subside for days, weeks or months, when a new flare-up will again put the patient through the same cycle." Permanent changes may come in the bronchial mucosa, with purulent exudates appearing. Areas of atelectasis may ensue, or there may follow adhesive pleuritis or a chronic severe cough, contributing to the development of bronchiectasis. Allergy plays a definite role in the disease, which is to be expected in a "chronic pulmonary disease that produces cough, expectoration, loss of weight and energy, general asthenia and anemia—a clinical picture that first suggests tuberculosis."

The author has done a timely piece of work in bringing to attention this rather common disease. Wisely he says "surgery (of the sinuses) is not self sufficient, and the case must be managed by the internist for months to follow from the immunological and allergic view points."

(1) Egbert, Orville E.: Sino-Bronchial Disease, Tex. St. J. of Med. 37:651, (February) 1942.
(2) Estimates of the National Health Survey (1935-36)

Prescott Session

Elsewhere in this issue will be found the program for the Annual Session of the Arizona State Medical Association, to be held this year at Prescott.

Beginning on Monday, May 25, the House of Delegates takes up its deliberations. A full agenda is to be considered. The first scientific session is scheduled for Wednesday, May 27.

Among out-of-state speakers are:

1. DR. LEROY U. GARDNER, Director, The Saranac Laboratory of The Edward L. Trudeau Foundation, Saranac Lake, N. Y.
2. DR. HOWARD P. HOUSE, Los Angeles, California. Diplomate American Board Otolaryngology.
3. DR. E. CUMMINGS, Ph. D., Director, Division of Industrial Hygiene, University of Colorado Medical School, Denver, Colorado.
4. DR. WM. A. BOYCE, Professor of Ophthalmology, College of Medical Evangelists, Loma Linda, Los Angeles.
5. DR. A. J. RIDGES, Salt Lake City.
6. DR. FRANK HINMAN, Clinical Professor of Urology, University of California Medical School, San Francisco.
7. DR. VERNE C. HUNT, F. A. C. S. Clinical Professor of Surgery, University of Southern California Medical School, Los Angeles; Diplomate American Board of Surgery.
8. DR. HENRY STANLEY ROGERS, Petaluma, California. President, California Medical Association. (Representing the American Medical Association and the National Physicians' Committee.)
9. DR. NOBLE WYLIE JONES, Portland, Oregon. Clinical Professor of Medicine, University of Oregon Medical School.
10. DR. HOMER L. SAMPSON, Saranac Lake, N. Y. Director of X-ray Laboratory of the Trudeau Sanatorium.

Several hours are to be devoted to aspects of the physician's role in the war. The type of presentation known as the symposium is employed throughout the sessions, wherever practicable. Subject matter of some of the symposia will be: Arthritis; Silicosis; Urological Conditions in Women; Eye, Ear, Nose and Throat in general practice. Arizona members will take part, along with the guest speakers. Various luncheons will be held by the sections. The last sessions on Friday evening will be open to the general public.

In these uncertain days it behooves the doctor to strive harder than ever to keep himself professionally fit. This is no time to fold the hands and rest one's case on laurels acquired in the past. This is no time to get lazy or despair of the future. More than ever, the American physician must attend his scientific meetings, must devote time to learning the new and reviewing the old. It becomes, then, almost a duty to attend one's state meeting. A great deal of work and planning has gone into the making of this year's Arizona program—it must not be wasted.

Dr. E. Payne Palmer of Phoenix will be installed as president of the Association, succeeding Dr. W. P. Holbrook of Tucson. Host to the Prescott session is Yavapai County Medical Society, whose president is Dr. Florence B. Yount. The lovely city of Prescott, in northern Arizona, provides a splendid setting for this year's War Session. Those of us in the service of Uncle Sam, as is this writer, envy our friends and colleagues in their opportunity to attend this meeting. Our thoughts and good wishes will be in Prescott from May 25-29. God speed!

Congenital Dislocation of the Hip

(Its Incidence in New Mexico)

FRANK C. GOODWIN, M. D.
and
DAVID M. CAMERON, M. D.
El Paso, Texas

CONGENITAL dislocation of the hip shows a racial tendency. We have found it fairly frequently among the Spanish-American population in the State of New Mexico. We wish to report this incidence as we have found it at the Carrie Tingley Hospital for Crippled Children: we wish to include a review of the literature and present the signs and symptoms. The follow-up period has been too short to give accurate results, but, we would like to offer a few suggestions that we have found succesful in the care of these unfortunate individuals.

REVIEW OF LITERATURE

Congenital dislocation of the hip has been treated in the United States for at least a half century. The New York Ruptured and Crippled Hospital records an open reduction of this condition performed by Hoffa on September 28, 1891. A year later on October 28, 1892 this hospital records Gibney's first class reduction and tenotomy of the adductor muscles of a congenitally dislocated hip. It was not until 1902 that Lorenz and Mueller made their sensational trip through several large clinics in the United States demonstrating their "bloodless" method of reduction of congenital dislocation of the hip. At the turn of the century this affliction was just beginning to become amenable to treatment. Of these cases about 15 per cent were considered satisfactory.

Since these early attempts there have developed different schools of thought on the care of these patients. Putti at the Institute of Orthopedico Rizzoli reported that in 2556 dislocations seen over a period of twenty-nine years, only 4 per cent have been treated by open operations. He likewise reports that 90 per cent of the single and 65 per cent of the double dislocations have led a satisfactory functional and anatomical result. Yaeger, Galland and Freiberg in this country have been advocates of the closed method and have added ingenious methods of treatment.

On the other hand, there are those who strongly advocate open surgery. Galloway states that his cases must not have been previously manipulated. Kidner, who believes that most cases should be operated upon, states that of 34 hips that he opened, all had five obstacles to reduction. These were that there was closure of the acetabulum by the lower leaf of the capsule; that the round ligament filled the acetabulum when the hip was reduced; that there was a relative difference between the acetabulum and head of the femur; that the roof of the acetabulum was sloping; and that there was an antiversion and shortening of the femur. Most of the series report an average, a better hip following open reduction; however, Kidner states that the most perfect anatomical results follow closed manipulation. The anatomical results following open operation are rather surprising. Roberts reports that changes in the femoral head following open and closed reduction were 64 per cent and 60 per cent respectively. Acetabular changes were seen in 25 per cent and 40 per cent of open and closed reductions respectively.

In 1926 the men at the New York Orthopedic Dispensary and Hospital believed that more surgery should be done on this condition. A similar conclusion was reached in 1935 following a symposium on cogenital dislocation of the hip. Here, it was reported that 44 per cent and 84 per cent of closed and open reductions respectively, were successful. The conclusion was reached that the closed method was the method of choice up to two and possibly three years of age, and that forceful methods were dangerous. One man stated that he believed the Lorenz method was responsible for many hopeless cripples.

In 1935 Steindler *et al* presented some logical conclusions in the treatment and care of congenital dislocation of the hips. He believed that the European operators, who for the most part, advocated the closed methods were too optimistic about their results. He has found that the results became progressively worse as the period of observation became longer. In other

words, the end result should not be tabulated until after the patient has stopped growing, and this result should be compared with the functional result of individuals who have never been treated.

In regards to the open method of treatment, he states that it does not offer a panacea for all cases, and that it should be a supplement, not a competitor to the closed method. He believes that open surgery should be done on the primary irreducible and primary irretainable hips. Finally, he states that only patients up to eleven, and preferable to eight years of age, are ammenable to open surgery. He offers a ray of hope to the old cases by stating that in many patients, with sufficient subjective and objective symptoms, simple shelving and osteotomy will improve their disability.

It can be seen that the results of treatment are improving largely because the laity is becoming acquainted with the condition. Mothers are bringing their children in for more frequent check-ups, giving the orthopedic surgeon a chance to diagnose and treat the condition earlier, and, the more violent methods are now being replaced by gentler manipulation and surgery.

SIGNS AND SYMPTOMS

The signs and symptoms of congenital dislocation of the hip are so constant that a clinical diagnosis can often be made before x-rays are taken. The mother usually gives the first clue by noticing that one or both legs are held in external rotation, or else that one leg is used more freely than the other, or that there is a shortening of one leg. A careful examination in the unilateral cases will show the affected leg to have an increased number of skin folds on the inner side of the thigh, this leg being held in external rotation. The inguinal and gluteal creases are deepened on the affected side and the gluteal muscles are atrophied. The greater trochanter is more prominent on this side. With dexterity it can frequently be determined by palpation that the head of the femur is out of the acetabulum. Finally, the affected leg appears shorter. Freiberg states that this can be determined by placing the patient in the supine position and flexing the knees on the thighs. Occasionally the femur can be felt to telescope with axial pressure. When the Trendelenburg sign is positive the diagnosis can usually be certain.

The pelvis in bilateral cases appears unusually wide due to the prominence of the greater trochanters. The thighs are separated on the inner sides. There is an increased lordosis with a bilateral flattening of the buttocks, and forward displacement of the body axis. The waddling gait is almost pathognomonic of bilateral dislocation of the hips. Jaeger adds that there is a crackling when the legs are abducted and in this position there is an apparent shortening of the legs.

X-rays are diagnostic. Freiberg has gone so far as to suggest that prophylactic x-rays be made of all newborns.

INCIDENCE

The Latin races seem to have the highest incidence of congenital dislocation of the hip. Putti and others state that there are many cases in Northern Italy and Southeastern France (Basque Country), but that this condition is rarely seen in Southern Italy, and is almost unknown in Sicily. The Nordics and Negroes are relatively immuned to this affliction. We wish to point out that the Spanish-American is susceptible to congenital dislocation of the hip. Over a period of four years at

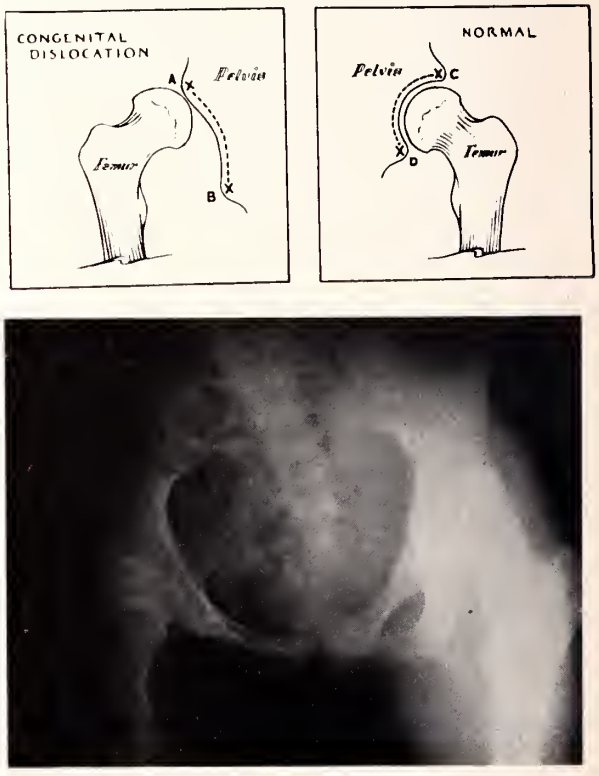
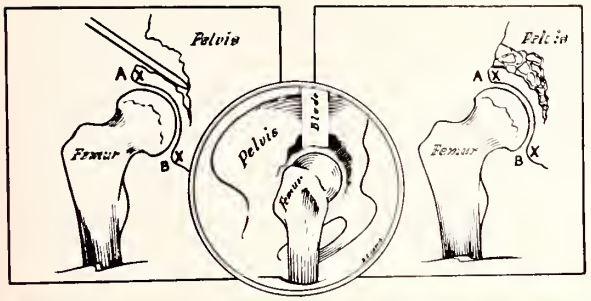


Figure 1. Dislocation of the right hip.
Schematic insets show that the circumference of the acetabulii are the same, the difference being in the shape; i. e., A-B is the same length at C-D.



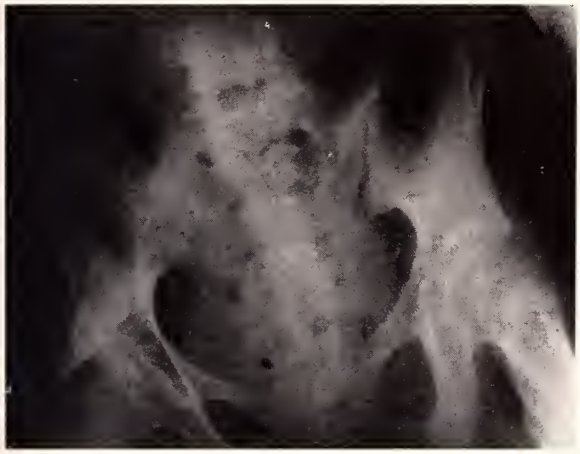


Figure 2. Same hip after reduction with well-leg traction and surgery. Schematic insets show entire upper edge of the acetabulum being turned down and held with bone chips.

the Carrie Tingley Hospital there have been 727 admissions. Of these 26 or 3.5 per cent had a congenital dislocation of the hip. The incidence of 9.1 per 100,000 Spanish-American population should be compared with 17.9 per 100,000 population in Bordeaux, France as found by Adams. Our figure of 1.7 per 100,000 Anglo population is roughly comparable to Adam's figure of 3.8 per 100,000 population in New York. It is interesting to note that most of the Spanish-American children with this condition were nearly pure Spanish. This appears to indicate that an Old World condition is being carried over into the New World.

We have found a ratio of females to males of about four to one; this is lower than the incidences reported by others. The youngest patient in which a diagnosis was made and treatment started was one year of age. The oldest was twelve years of age. The mean average age was six years. There were seven (27%) operations.

SUGGESTIONS

We merely have suggestions to make in the care of these patients because our cases are still too recent to report results. We are strong advocates of gentle manipulation up to the age of eight years. Some of our cases have shown exceptional results when treated even at this late date. Our second suggestion is in regards to surgery. We have no hesitancy in operating upon any case if we believe it is either primarily irreducable or irretainable. The first criterion is determined at the first manipulation. The second criterion in most cases can be determined at the first manipulation and in all cases when the cast is changed. Those hips wherein the femur slides in and out of the acetabulum with but minimal effort are usually primarily irretainable. The type of surgery to be done on these cases depends on the individual case. We have had no experience with cases over twelve years of age so we cannot state at what age surgery should be discontinued. We first attempt to bring the head of the femur opposite the rudimentary acetabulum with well-leg traction. The actual surgery has consisted of either merely replacing the femoral head in the acetabulum after removing the obstructions to reduction and incidentally, these obstructions are those found by Kidner, or else making an adequate acetabulum by a shelf operation.

It is this type of shelf operation that we

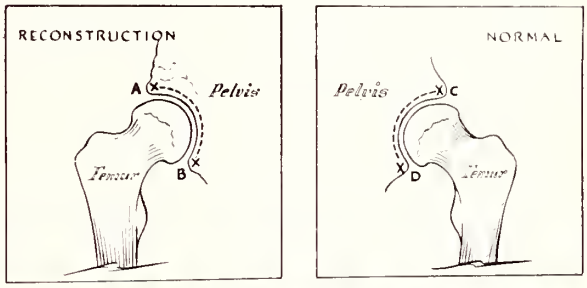


Figure 3. Same hip eighteen months post-operative. Schematic insets show that A-B and C-D remain of the same length.

comment upon. Many children that have been operated on in well recognized hospitals have been seen in our out-patient department. Almost invariably the shelves have been found inadequate because they are too high and are oblique in the wrong direction. Frequently the shelves have absorbed to almost nothing. We realize that these are the poor results from other hospitals, but they have afforded us a lesson. We make our shelves low at the acetabular margin. In the x-ray of the pelvis, the length of the two acetabuli are the same, the difference being only in the contour. By putting an osteotome behind this elongated acetabulum, the cartilage can be made to fit over the head of the femur. This is held in position by bone chips taken from the outer table of the ilium (fig. 1 & 2). Traction is maintained on the leg until the newly formed acetabulum is completely solid.

SUMMARY:

1. The recent literature has been reviewed.
2. The signs and symptoms have been presented.
3. The Spanish-American child shows a high incidence of congenital dislocation of the hip. Most of these children are of nearly pure Latin ancestry.
4. We have made suggestions as to the care of these patients, with particular attention to the surgical interference.

First National Bank Bldg.

TABLE I. TABLE OF INCIDENCE

	Total	Anglo	Span. Amer.
Population State of New Mexico	527,000	290,290	237,510
Total Admission C. T. Hospital	727*	314	411
Cong. Dislocation of the Hip C.T.H.	26	5	21
Incidence per Admission	3.5%	1.6%	5.1%
Incidence per 100,000 Population	4.9	1.7	9.1

* Two negroes

TABLE II.

DISTRIBUTION OF CONGENITAL DISLOCATION OF HIP

Youngest	1 year
Oldest	12 years
Mean Average Age	6 years
Males	5
Females	21
Number of Operations	7

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Correlation of the Pathology of Coronary Occlusion

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EVERY disease has its morphologic, or structural, basis. In some diseases, such as lobar pneumonia and cancer, the structural changes are easily demonstrated and can be readily correlated with their clinical manifestations. In other diseases, the structural changes may not be demonstrable, but the morphologic basis of the disease is present in anatomical structure, none-the-less. The morphologic basis of disease is a solid foundation upon which to build, or a point of departure from which to formulate, a useful and working concept of the functional, chemical and clinical picture of any particular disease.

It is from this point of view that we propose to study coronary occlusion. The use of this

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method began as an experiment in teaching Pathology to Sophomore medical students, and has been tried out repeatedly on older members of the medical profession. The course of the disease has been charted and its various manifestations have been platted as on a map. Ignoring those rare and somewhat questionable cases of occlusion of otherwise normal coronary arteries, it may be said that the earliest and basic change in this disease is atherosclerosis of the arteries which supply the heart. A chain of events follows this initial change which may lead to no serious consequences or which may initiate a complete closure of the lumen of one of these vessels with its disastrous effects on the myocardium and on the patient.

ATHEROSCLEROSIS

Atherosclerosis of any artery begins as isolated multiple foci of edema of the intima, followed by fatty and lipoid degeneration, necrosis and calcification. The calcification often involves the media and is therefore like the Moenckeberg type of sclerosis. The swelling of the intima may, of itself, close the lumen of the vessel, but more commonly, the final occlusion is the result of the formation of a thrombus at the atherosclerotic patch in the wall of the artery.

The immediate effect of the final closure of a branch of a coronary artery, as seen in experimental ligation of such a vessel in animals, is cyanosis and bulging of that portion of the myocardium supplied by the occluded vessel. The blood flow through this portion of the myocardium ceases and the muscle rapidly becomes necrotic. Once the occlusion is complete the ultimate results depend upon several factors: the size of the vessel whose lumen is closed, the portion of the myocardium involved, the balance in the distribution of the two coronary arteries, and the management of the patient.

Usually the first manifestation of closure of a branch of a coronary artery is excruciating pain. However, in nearly fifty per cent of cases pain is either absent or is only a minor symptom. It may be mistaken for pain due to other causes just as pain due to other causes may be mistaken for that resulting from coronary occlusion. Pain in coronary occlusion is generally believed to be due to ischemia of the heart muscle, just as intermittent claudication is related to ischemia of the muscles of the leg.

Occlusion of a small branch of a coronary artery may be symptomless. It is not uncommon at post-mortem examination to find scars in the myocardium of patients who gave no history of anything that could be recognized clinically as coronary occlusion. That portion of the heart muscle whose blood supply has been cut off by coronary occlusion is quickly rendered functionless. Since this lesion most frequently occurs in a branch of the left coronary artery, the closure of a large branch may be accompanied by a fall in systemic blood pressure. The fall in pressure may be so precipitate and so marked that death intervenes almost immediately. On the other hand, if fatal hypotension does not occur, the ischemic portion of myocardium within two or three days becomes softened by autolysis and rupture of the heart wall at the site of the infarct may result in intrapericardial hemorrhage and immediate death. This usually occurs 48 to 72 hours after the closure of the vessel. Even slight exertion that causes a sudden rise of intraventricular pressure, predisposes to rupture of the heart wall. It is for this reason that absolute rest is essential to the proper management of patients with coronary occlusion during this particular dangerous period of the disease as well as throughout its more acute phases, of the first few weeks.

Occlusion of the transverse branch of the left coronary artery near its place of origin is particularly dangerous. In addition to the dangers already described, closure of this branch results in necrosis of the large posterior papillary muscle. Infarction of this portion of the myocardium interferes with the function of the mitral valve, so that to weakening of the wall of the left ventricle there is added the complication of mitral insufficiency.

CONGENITAL ANOMALIES

Schlesinger has recently called attention to the effect of congenital anomalies in the distribution of the two coronary arteries. Normally the left coronary artery supplies the anterior wall of the left ventricle and the anterior portion of the interventricular septum through its descending branch and the posterior wall of the left ventricle through its transverse branch; while the right coronary artery supplies the wall of the right ventricle and the posterior part of the interventricular septum. In some patients the right coronary artery is small and short and does not reach to the interventricular groove. The transverse branch of the left coronary

artery then supplies the posterior wall of the left ventricle and the posterior portion of the interventricular septum. Occlusion of such an anomalous transverse branch will deprive a much larger than normal amount of myocardium of its blood supply and will therefore be more dangerous to the life of the patient than the closure of such a branch with a normal danger to the patient than closure of a vessel with the usual distribution. Some very quickly fatal cases of coronary thrombosis may be due to closure of such an anomalous artery. There is a possibility that the electrocardiogram may enable the cardiologist to recognize clinically the anomalous distribution of the coronary arteries before occlusion takes place. At present this cannot be successfully done.

REPAIR EFFORTS

After the period in which the danger of imminent rupture of the ventricular wall has passed the remarkable process of adaptation in the crippled heart begins. A localized aseptic fibrinous pericarditis develops over the site of the infarction of the myocardium and the parietal pericardium becomes adherent to the surface of the heart. At first this attachment is loose, but with time organization of the exudate results in a firm fibrous adhesion which protects against further danger of rupture of the ventricular wall.

Necrosis of that portion of the myocardium deprived of its blood supply reduces the mass of functioning heart muscle. This naturally leads to deficient force in systole and lowering of systemic blood pressure. When the left ventricle is involved it is unable to keep blood brought to it moving in the normal amount and at the normal rate. Congestion and edema of the lungs with dyspnea are the inevitable result. This passive congestion and edema are, in some manner, a safety mechanism in that the lungs act as a sort of reservoir or "flood chamber" which protects the damaged left ventricle against a greater amount of blood than it is capable of handling.

While this passive congestion of the lungs may protect the heart against a greater amount of blood than it can handle, it has other undesirable effects. The chief of these is the reduction of the vital capacity of the lungs, that is, of the greatest amount of air that can be expelled after the deepest possible inspiration. The actual normal vital capacity varies, obviously, with the size of the individual, but has been found to equal approximately 2.46 liters per square meter of body surface in men, and 2.07 liters, in women. The ratio between the quantity of air remaining in the lungs after an ordinary expiration and the total amount of air that the lungs are capable of containing is normally 2 : 5. In pulmonary congestion these two quantities tend more and more to become equal, which means that with increasing degrees of congestion, the available air space in the lungs is gradually reduced to a level nearer and nearer to their total functional capacity. As a consequence, the functional reserve of the lungs is reduced and there is a constant liability to the occurrence of dyspnea under any conditions requiring increased pulmonary ventilation.

VITAL CAPACITY AND DYSPNEA

At least three factors are concerned in the reduction of the vital capacity of the lungs and the production of dyspnea. In the first place, the capillaries in the alveolar walls are distended with blood, they become wider and more tortuous, the alveolar walls themselves are thickened and the space available for air in the lungs is reduced. The total alveolar space is further decreased by the accumulation in many alveoli of phagocytic cells which have engulfed red blood cells that have escaped in small numbers from the distended capillaries into the air sacs. These cells contain hemosiderin, an iron-containing pigment, and are the "mitral cells" or "heart failure cells" found in the sputum of patients with cardiac decompensation. In the second place, congested lungs lose much of their normal distensibility and elasticity. Greater force is required to expand them during inspiration and they collapse less readily and less completely in expiration. The force which causes expansion of the lungs is a fraction of the atmospheric pressure approximately equal to the negative pressure in the thoracic cavity. During quiet respiration by normal lungs this negative pressure ranges between 5 and 9 mm. Hg., but can be increased by deep inspiration to 30 to 40 mm. Hg. The lower pressures mentioned are quite sufficient to fill with air the alveoli of the light, soft, delicately spongy, easily expansible normal lungs. The resistance to distension of the lungs in passive congestion is increased. Therefore, a greater pressure is required to drive air into the heavier, firmer, more coarsely spongy, less expansible congested

lung. This augmented pressure can be obtained only by increasing the negative intrathoracic pressure by intensified inspiratory effort. Not only is the inspiratory effort enhanced but, because the congested lung has lost much of its elasticity and does not collapse of its own accord, the expiratory process ceases to be automatic and passive. The expulsion of some of the air requires the active conscious participation of the muscles of expiration. This, then, is the mechanism by which dyspnea is produced in left ventricular failure due to coronary occlusion.

While the reduced vital capacity of the lungs and dyspnea are both accompaniments of passive congestion of the lungs, the decrease in vital capacity is not the basic cause of the dyspnea. Fundamentally they are both due to the same cause, namely, to the reduced distensibility of the lungs which increases the difficulty of augmenting the quantity of air inhaled and expelled during each inspiration and expiration whenever there is an increased need for greater pulmonary ventilation. In extreme cases of congestion even orthopnea may develop. The vital capacity of the lungs of normal persons is less in the recumbent than in the upright position. When, after coronary occlusion, the decreased distensibility of the lungs and the decreased vital capacity reaches such a degree as to produce marked dyspnea, then orthopnea may also develop.

PULMONARY EDEMA

The mechanism of production of pulmonary edema in coronary occlusion is far from clear. The mechanisms which account for the occurrence of subcutaneous edema in cardiac decompensation and in nephritis do not appear to operate in edema of the lungs. In both cardiac and nephritic edema the chief factor is an imbalance between the hydrostatic pressure which tends to force fluid out of the capillaries and the osmotic pressure of the plasma proteins which tends to hold fluid in the blood. In nephritic edema the hydrostatic pressure remains normal while the osmotic pressure of the plasma proteins is reduced. In cardiac edema it is the hydrostatic pressure that is altered. The normal osmotic pressure of the plasma proteins is about 25 mm. Hg. and the hydrostatic pressure must exceed this level before edema results, or even before fluids can escape from the blood into the tissue spaces. Wiggers found that the systolic pressure in the pulmonary artery averaged 44 mm. Hg. and the systolic pressure averaged 12 mm. Hg. The pressure in the pulmonary veins is zero or thereabouts. Hence the hydrostatic pressure in the alveolar capillaries is probably below that of the osmotic pressure of the plasma proteins. This may account for the fact that there is no exchange of fluids between the blood in the pulmonary vessels and the tissue spaces, which in these organs, would be the alveoli themselves. It appears likely, therefore, that alterations in the permeability of the endothelium of the capillaries of the lungs may be the essential factor in the mechanism of pulmonary edema in coronary occlusion. Passive congestion is known to increase the permeability of endothelium. Whatever the mechanism of production of pulmonary edema, it adds greatly to the difficulties which are associated with the passive congestion due to coronary occlusion.

In both congestion and edema there is disturbance of exchange of gases in the lungs between blood and air. Oxygen does not diffuse through membranes and fluids as readily or as rapidly as does carbon dioxide. Oxygen is less soluble than carbon dioxide which combines with water to form carbonic acid, a very soluble substance. There is, therefore, a greater disturbance of the exchange of oxygen in both pulmonary edema and congestion than of carbon dioxide. In congestion the column of blood in the capillaries in the alveolar walls is much thicker than normal. The red blood cells in the central portion of this column of blood are therefore separated from the source of supply of oxygen by a relatively considerable distance and the oxygen saturation of the blood in the pulmonary vein may well be below that of normal arterial blood. This condition is aggravated or accentuated in pulmonary edema.

CYANOSIS

In cardiac decompensation due to coronary occlusion, also, cyanosis sometimes results. This condition is related to the amount of reduced hemoglobin in the blood. In order for cyanosis to occur there must be about 5 grams of reduced hemoglobin per 100 c.c. of blood, which is equivalent to about 20 per cent unsaturation of capillary blood. In the cardiac decompensation of coronary occlusion, the systematic circulation is slowed so that the blood remains in the

capillaries within the tissues for a longer time, and loses a greater amount of oxygen, that is, the amount of reduced hemoglobin is increased in the venous blood. Since oxygenation of blood in the lungs in coronary occlusion, associated as it is with pulmonary congestion and edema, is interfered with, the blood in the lungs does not become completely oxygenated. The result is that in extreme cases the amount of reduced hemoglobin in the blood may equal or exceed the 5 grams per 100 c.c. required for the production of cyanosis. This is the mechanism by which cyanosis develops in coronary occlusion.

EFFECTS OF INFARCT

Other derangements of heart action in coronary occlusion depend upon the size and location of the infarct. To compensate for its inability to deliver the normal amount of blood with each systole, the heart tends to beat faster than normal, so that tachycardia is not an uncommon manifestation of coronary occlusion. Arrythmia, heart block and auricular fibrillation may also occur depending upon the location and size of the infarct of the heart muscle. Many of these alterations in function are demonstrable in the electrocardiogram.

If the infarcted region extends to the endocardium a mural thrombus forms over the site of damage. This thrombus may give rise to emboli which are swept into the systemic circulation to find lodgement in various parts of the body. Usually these do no irreparable damage unless an embolus lodges in a vessel of the brain.

Very soon after infarction of a portion of the myocardium liquefaction of the necrotic tissue begins. The products of autolysis are absorbed into the general circulation and stimulate the bone marrow to produce greater numbers of polymorphonuclear leucocytes thus giving rise to the leucocytosis so characteristic of coronary occlusion. These products of autolysis also cause disturbance of heat regulation and fever results.

As recovery progresses, the necrotic heart muscle is gradually replaced by fibrous tissue by the process of organization. This strengthens the heart wall at the site of weakness with supporting but non-functioning tissue. The heart is thus permanently damaged by coronary occlusion and its functional reserve is reduced. Because of this there is dyspnea on slight exertion and varying degrees of disability. Futhermore, this scar in the heart wall, is of sufficient size, will bulge with each systole producing a cardiac aneurysm which is usually readily demonstrated in X-ray films. The function of the left ventricle, in which infarcts of the myocardium are most frequent, is hampered by such an aneurysm. A part of the force of its contraction is wasted in distending the aneurysmal sac. However, the remaining portion of the damaged ventricle undergoes hypertrophy. This increases to some extent the efficiency of the heart, diminishes the dyspnea on exertion and increases the capacity of the patient for work. But such a heart is permanently crippled, the greater part of its functional reserve is irrevocably lost and the patient is constantly in danger of the onset of cardiac decompensation. This latter condition may develop suddenly to be followed by unexpected death; or more slowly with the usual clinical picture of pulmonary congestion, dependent edema and a slower type of death.

Thus a patient with coronary occlusion may pass through a stage of acute danger from sudden and marked fall in blood pressure or from rupture of the heart wall and intrapericardial hemorrhage. If the patient survives this stage of the disease, the infarct in the heart wall heals by replacement with scar tissue and he may live fairly comfortably for years, but he is always a possible victim of sudden or gradual cardiac decompensation. The proper management of such a case requires not drugs but sympathetic guidance in the formulation of a mode of life that will protect the crippled heart against emergencies and avoidable stresses and strains of this modern world.

Northwestern University School of Medicine.

Annual Session
NEW MEXICO MEDICAL SOCIETY
June 25, 26, 27
Santa Fe
Headquarters:
La Fonda Hotel

Stasis as a Factor in the Chronicity of Non-Specific Upper Urinary Tract Infections

HARRY CULVER, M. D.
Chicago, Illinois

PERSISTENT upper urinary tract infection, or chronic pyelonephritis is characterized by either one or both of two readily recognized clinical features. First, the most common, is pyuria and bacteruria varying in degree from time to time in the same individual and presenting more definite and significant variations in general, according to the type of infecting organism, i. e., bacillary infections tend to produce more pronounced findings than those produced by coccal infection, the latter, at times, being so trivial that they may be completely overlooked in an ordinary routine urinary study. A second clinical feature of chronic upper urinary tract infection is recurrent attacks of acute exacerbations usually with localizing signs directed to one or both kidneys. Attention should be directed to the fact that frequently when patients are examined between attacks they are free from any evidence of urinary infection, cystoscopic findings and urine cultures are negative; however, after weeks or months an acute recurrence presents itself. Following the removal of foci of infection and with the development of a natural immunity, these patients usually completely recover. These are examples of a negative phase of the infection or, more logically, reinfection by available bacteria from infectious foci.

The primary onset of kidney infections, as in infections in general, is a contest between the inhibiting properties of the tissues invaded by bacteria and the virulence of the invading organisms, a decrease or increase of one of these properties will decide whether infection is to occur. The chief factor in lowering protective resistance to kidney tissue is mechanical or functional interference to normal elimination by this kidney.

That infection occurs, at times, in otherwise clinically normal kidneys there can be no doubt, when one considers the great number of renal infections that either spontaneously disappear, or rapidly respond to oral medication without leaving a trace of their former presence, or any evidence of renal or ureteral post-infection dysfunction. Complete urologic study, including visualization of the upper urinary tract is usually normal under these circumstances. The factors primarily responsible for such infections obviously must be concerned with the dosage or virulence of the invading organisms, or by some unrecognized and probably temporary breakdown of the normal tissue protective mechanism. Beer has suggested that it is conceivable that unrecognized physiological anomalies are just as important in localization of infections within the kidney as the well recognized stasis producing anatomical anomalies.

Read before Southwestern Medical Association, El Paso, November 20, 1941.

CHEMOTHERAPY

The epoch making advances in chemotherapy of non-specific urinary tract infections have markedly reduced the incidence of chronic pyelonephritis and ureteritis. Clinical observation and analysis of results in the management of any large material, however, with this device alone, will reveal a large percentage of unsuccessful results. In the first place approximately ten percent of the patients will be intolerant to the drug, or will be unable to fulfill the necessary requirements for obtaining the optimum benefits of its use. Even with a good tolerance and other known requirements satisfactory there is a considerable group of failures after adequate dosage of the various drugs and their derivatives over long periods.

Just as stasis any place along the urinary tract is an important factor in the cause of primary localization of bacteria within the urinary tract, it likewise is generally known to be a major cause of persistent and continuous infection. In the presence of known urinary stasis at any point along the urinary tract, associated with infection, observers with only limited experience soon appreciate the futility of long continued oral and local chemotherapy as a means of sterilizing this urinary tract. To be sure, these infections can be held in abeyance by such methods but will almost invariably return to their former status as soon as chemotherapy is withdrawn. Reports of complete sterilization in the presence of minor degrees

of stasis have been made, but these should not alter the general understanding of the situation.

COMMON TYPES OF OBSTRUCTION

With persistent infection, unsuccessfully treated by adequate chemotherapy, obviously attention should be directed to further examination of the entire urinary tract to reveal the absence or presence of urinary stasis any place along its entire course. Conservative procedure would be the use of intravenous urography which is sufficient for only a very small percentage of these patients in properly visualizing the upper urinary tract, while this method at no time reveals the status of the lower urinary tract, nor does it permit the determination of the presence of infection from one or both kidneys by microscopic study and culture. Complete cystoscopic study is almost invariably eventually done and in my experience should be the primary procedure, thus eliminating the time and expense necessitated by the use of a preliminary intravenous urographic study.

It is not within the scope of this discussion to enter the unsettled field of ascending urinary infection, but it is pertinent to observe that bladder residual urine predisposes to persistent renal and ureteral infection even when there is no appreciable stasis above the bladder.

In passing, mention only can be made of the various long standing bladder neck obstructions and neurogenic bladder disturbances resulting in infection which often involves the ureterovesical valve structures, leading to ureteral reflux. Upper tract infection under these conditions is rarely cured even after successful management of the original offending structure.

Time permits but to mention intravesical lesions producing unilateral or bilateral ureteral obstructions, with corresponding stasis, such as bladder tumor, diverticulum, stone and carcinoma of the uterine cervix before or after irradiation causing infiltration and fibrosis of the bladder floor. Extraurinary masses either neoplastic or chronic inflammatory within the peritoneal cavity or retro-peritoneal can produce urinary stasis by mechanical pressure or by interference with normal ureteral or pelvic peristalsis.

Ureteral strictures, acquired or of congenital origin, are common offenders in this connection and may be readily recognized by proper cystoscopic study combined with urography.

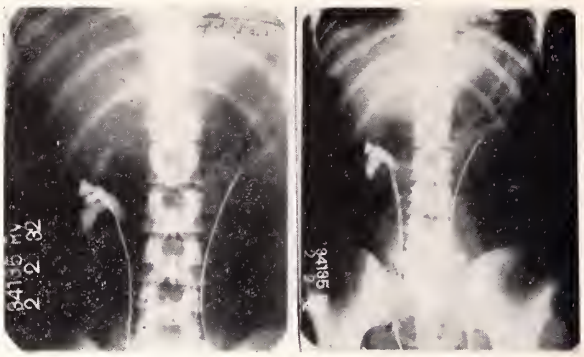

Figure 1. Retrograde pyelogram of a seventeen-year-old girl with right sided pain, at times dull, also sharp and sudden—no radiation. Symptoms followed trauma of lifting. Urine shows streptococcus viridans. Ureterolysis and nephropexy was done 5 years ago and her symptoms and urinary findings have not been completely relieved.

Note almost complete occlusion of infundibulum of upper calyx. No doubt the symptoms are those of hydrocalyx. The first operation was not only not completed but probably not indicated. Resection of upper pole should have been done then and may have to be done eventually. Urine still infected.

Periureteritis resulting in adhesions is a most common cause of ureteral stenosis by causing actual periureteral constriction or by the formation of kinks and displacements.

Congenital anomalies have long been recognized as a cause of upper tract stasis, but their numerical importance is constantly increasing with the more general improvement in the type and number of proper examinations which may reveal their presence. Let it suffice to mention congenital stricture at the ureterovesical or ureteropelvic junctions, valves at the ureteropelvic junction, anomalous insertion of the ureter to the pelvis, ectopic ureteral opening, ectopic kidneys, the various types of renal fusion and last but not the least important, anomalies of the renal blood supply.

Appreciable stasis without evidence of obstruction must not be overlooked, neither should it be forgotten that these are frequently bilateral and probably represent a neuro-museular imbalance of congenital origin. It is needless to say that this diagnosis should not be made until all the available diagnostic facilities have been used to discover mechanical obstruction.

At this point should be stressed the importance of a considerable group of chronic bilateral kidney infections, having a varied bacterial origin and characterized chiefly by tortuosity and marked ureteral dilation. The typical ureter is dilated irregularly throughout and often presents the appearance of multiple constrictions. It is not regularly possible to ascribe the irregular dilatations to constrictions,

but rather to the result of chronic inflammation and scar formation of the ureteral wall. The greatest dilatation of the ureter is usually of the upper third. There may or may not be pelvic dilatation while the calyces are usually constricted and irregular in outline.

This ureteral dilatation is largely the result of chronic inflammation, but secondary constrictions from scarring may result in added irregular dilatation by this mechanical obstruction. Thus is developed a stasis both mechanical and functional associated with bilateral infection in which a bacterial cure should rarely be expected. Ureteral dilatation by instrumentation, together with chemotherapy may control progress of the lesion and thus tend to prevent surgical complications such as pyonephrosis; however, a complete cure is never affected and such patients should be under observation and management indefinitely. When the infection is under control and both ureters open to fair sized bougies throughout, the patient carries on usually without clinical incidents year after year, but always with the knowledge that clinical observation is imperative and with the unknown hazard of a possible gradual decrease in renal function.

The purpose of this preliminary discussion is to direct attention to some of the more common factors concerned with the production of urinary stasis and their known tendency to sometimes primarily cause and regularly to maintain upper urinary tract infection.

Figure 2. Typical diverticulum of a calyx. This one contains several small stones. Stones were removed once before by nephrostomy. Resection of the cyst is indicated before cure can be expected.

INFUNDIBULAR INFECTION

I wish now to call your attention to a heretofore not commonly recognized lesion of the renal calyces which makes for stasis of urine and localized infection of a corresponding segment of the renal parenchyma. These lesions are characterized by infective changes of an obliterative type, localized predominantly to one calyceal infundibulum, but other calyces may be similarly involved to a lesser extent. Acording to Hyams and Kenyon this infundibular constriction may terminate either in complete destruction and disappearance of the involved calyx or in its isolation from the true pelvis by an impervious barrier. Progress in this direction may be slow, during which time persistent infection is present, and when the constriction has reached nearly occluding levels a suppuration of this calyx may occur.

The mechanism of the formation of this lesion is extension of infection to the submocosa of the infundibulum even to the peripelvic structures with resulting fibrosis and constriction. The observation has been made that there is a congenital basis for this series of events, in that all the infundibula of the kidney involved are congenitally narrow. The importance of this observation cannot be assayed at this time, but certainly it cannot be universally so, otherwise there would not be such a preponderance of one calyx involvements.

A microscopic study of the associated parenchyma reveals inflammatory infiltration and fibrosis, resembling in every important respect a pyelonephritic contracture which involves the whole kidney. There is usually a clear line of demarcation recognized grossly from the external surface of the kidney. This optical differentiation naturally will depend upon the stage of the process when the observation is made.

In the presence of such an infection produced localized stasis in patients who have other stone forming conditions we should expect to find stones within the obstructed calyx at times. This is precisely what occurs and the combination of stasis and stone makes an even more impossible local infection to influence conservatively than the stasis alone.

Recurrence of renal stone in the same calyx from which one has been removed by neph-

rostomy is not an uncommon observation. The presence of infection and stone or stone alone, so localized, should be viewed with suspicion of infundibular narrowing and pyelograms routinely made to reveal the condition of this draining area. Should evidence of infundibular stricture be definitely revealed, the removal of such a stone by nephrostomy obviously is an incomplete operation which will shortly be followed, in a large percentage of cases, with recurrence; if infection is present with the stone, it continues regardless of the type of chemotherapy used or the amount or kind of pelvic lavage given.

Infundibular strictures have been noted with stones in the calyces beyond, where a planned operation of nephrostomy and mechanical dilatation of the stricture have been carried out, at times even with a large drainage tube down into the pelvis through the dilated area. These operations are frequently unsuccessful and if the patients are followed by successive pyelograms, a recurrence of the constriction may be seen to occur, at times rapidly and more pronounced than when first observed.

To acquire a bacteriological cure under these circumstances the involved calyx and corresponding parenchyma must be removed if technically possible. From observation, the upper or lower major calyces are most commonly involved in these processes which allows for successful renal resection unless the parenchymal involvement has become too extensive. With multiple calyceal involvement nephrectomy is indicated as the complete destruction of the kidney is obvious in a progressive inflammatory process over which there is no measure of control. The end result of this continued process with its peripelvic and pericalyceal infection and fibrosis is complete destruction of the kidney tissue.

PYELOGENIC CYST

Diverticulum of a calyx or pyelogenic cyst, a lesion undoubtedly of congenital origin, is characterized by a narrow opening from the tip of a calyx, which leads to a smoothly lined dilated bulbous cavity. These local conditions may be found not associated with infection, but the very nature of the lesion predisposes to infection which does not respond to medical treatment. It is conceivable that such infection may become deep-seated resulting in parenchymal and pericalyceal fibrosis similar to that of the previously described process. As an incidental finding, not associated with infection, they are of no clinical importance, but when infection occurs they are susceptible to all the complications of the infection produced lesions, i. e., stone formation, suppuration and continued infection with fibrosis. When any one of these complications has taken place the treatment is surgical and should consist of renal resection which includes the entire cyst.

7 West Madison Street.

Psychoneurosis in General Practice

JOHN W. MYERS, M. D.
Albuquerque, New Mexico

EVERY era through which mankind has passed has had its characterizations, the appelations differing with the specialized interests and knowledge of various groups. Our present day may be thought of as the Dictator Era to the politically minded; the Era of Materialism and Neo-Paganism to the clergy, and the Machine Era to many a worker. This, of course, does not mean that there have not been dictators, materialism and machinery before but that for one reason or another these phases so color present living and so usurp present thinking that they seem particularly true of this period.

Our present-day forces of civilization are so numerous and conflicting that man finds himself too often in a state of perplexity, and in need of readjustment. Theories are rampant. He is offered panaceas for his religious, educational, emotional, financial, physical and political life. He samples most of them in an effort to find the proof thereof. The result is a figurative sour apple which he finds great difficulty in assimilating. This lack of assimilation takes the form of dubious aches and pains to which the medical man must listen and we all know of the legion of fakirs with their sure-fire remedies, to whom he may turn for relief.

So, for numerous reasons, we have the Age

PROGRAM

★

Fifty-first Annual Meeting

ARIZONA STATE MEDICAL ASSOCIATION

PRESCOTT, ARIZONA

May 25th - 30th, 1942

HASSAYAMPA HOTEL

★

Be sure to register immediately upon arrival at both the Registration and Entertainment desks.

★

OFFICIAL CALL

It is indeed a pleasure to issue the Official Call for the **51st Annual Meeting of the Arizona State Medical Association**, in convention assembled at Prescott, Arizona, May 25-30, 1942. The provisions of the Constitution and By-laws and the Official Program will govern deliberations.

Signed,
W. PAUL HOLBROOK, M. D.
President, Tucson.

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INVITATION

All members of the Arizona State Medical Association and their wives are cordially invited to attend the Annual Meeting from May 25th to 30th, 1942, in Prescott.

Members of the Yavapai County Medical Society are hard at work to see that nothing is lacking in hospitality, accommodations and entertainment. Plan to attend, for you will find a hearty welcome awaiting you.

Sincerely,
FLORENCE B. YOUNT, President
Yavapai County Medical Society.
E. A. BORN, Chairman,
Executive Committee.

●

AUXILIARY

The Ladies Auxiliary joins in this cordial invitation, and will present a program of luncheons, speakers and teas for the visiting ladies.

MRS. B. B. EDWARDS, Tucson,
State President,
MRS. JAS. H. ALLEN, Prescott,
President,
Yavapai Auxiliary Society.

REGISTRATION AND ASSEMBLY

Registration Headquarters will be at the HASSAYAMPA HOTEL. All members and visitors must register at the Association desk and receive badges for admission to the scientific meetings. **There will be no registration fee for Association members for the general scientific meetings.** Non-members, except invited speakers, will be charged a registration fee of $5.00 for the scientific meetings. Registration for entertainment will be at the "Entertainment Registration Desk" under the auspices of the Host Society, Yavapai County Medical Society, a fee being charged.

All papers or addresses read before the Association, except those of invited guests, shall be confined to twenty minutes. Opening discussions are limited to five minutes, and general discussions to three minutes each. A discussant shall speak but once on the same subject.

Papers read before the scientific sessions shall become the exclusive property of the Association and shall be deposited with the secretary for publication in **Southwestern Medicine**, the official scientific organ of the Association.

Social entertainment and program details are listed elsewhere in this program.

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MEETING PLACES

REGISTRATION	Hassayampa Hotel
Council	Hassayampa Hotel
House of Delegates	Elks Lodge Room
Scientific Sessions	Elks Lodge Room
Luncheons	To Be Announced
Banquet	Hassayampa Hotel
Stag Party	Hassayampa Country Club
Bowling Tournament	Saturday and Sunday
Golf	Saturday and Sunday
Auxiliary Features	See Their Program Herein
Public Meeting	Senior High School
Exhibits	Elks Club Room and Hassayampa Hotel

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ARIZONA STATE MEDICAL ASSOCIATION

OFFICERS AND COUNCIL

President:	
W. Paul Holbrook	Tucson
President-Elect:	
E. Payne Palmer, Sr.	Phoenix
Vice-President:	
O. E. Utzinger	Ray
Secretary:	
W. Warner Watkins	Phoenix
Treasurer:	
C. E. Yount	Prescott
Speaker of the House:	
C. C. Craig	Phoenix
Councilors:	
John W. Pennington (Central Dist.)	Phoenix
Geo. O. Bassett (Northern Dist.)	Prescott
Dan L. Mahoney (Southern Dist.)	Tucson
Councilors at Large:	
D. F. Harbridge	Phoenix
Hal W. Rice	Bisbee
Chas. S. Smith	Nogales
Delegate to the American Medical Association:	
Harold W. Kohl	Tucson
Chairman Medical Defense:	
Jesse D. Hamer	Phoenix

COMMITTEES

ANNUAL MEETING

Committee on Scientific Assembly:

E. Payne Palmer, Sr., (Chairman) ..... Phoenix
John W. Flinn ..... Prescott
T. C. Harper ..... Globe
John S. Mikell ..... Tucson
Frank J. Milloy ..... Phoenix
W. Warner Watkins (Secretary) ..... Phoenix

Registration:

W. Warner Watkins, Secretary-Chairman ..... Phoenix
C. C. Craig ..... Phoenix

HOUSE OF DELEGATES

Credentials Committee: To be announced.
Resolutions Committee: To be announced.
Miscellaneous Business: To be announced.

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YAVAPAI COUNTY MEDICAL SOCIETY

President ..... Florence B. Yount
Vice-President ..... Robert T. Phillips
Secretary-Treasurer ..... C. E. Yount

LOCAL COMMITTEES—ANNUAL MEETING

Executive:
E. A. Born
R. N. Looney
C. E. Yount, Sr.
A. C. Carlson

Finance:
R. N. Looney
C. E. Yount, Sr.
A. C. Carlson

Entertainment:
J. H. Allen
E. A. Born
G. O. Bassett

Program:
John W. Flinn
H. T. Southworth
J. P. McNally

Reservations and Accommodations:
J. P. McNally
J. H. Allen
John W. Flinn

Halls and Meeting Places:
H. T. Southworth
E. A. Born
G. O. Bassett

Hospitality and Transportation:
G. O. Bassett
J. H. Allen
H. T. Southworth

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OUR GUEST SPEAKERS

WM. A. BOYCE, M.D., F.A.C.S., Professor of Ophthalmology, College of Medical Evangelists, Loma Linda-Los Angeles, Calif.; Fellow of American Academy of Ophthalmology; Fellow of American College of Surgery; Diplomate of American Board of Ophthalmology.

DONALD E. CUMMINGS, Ph. D., Director, Division of Industrial Hygiene, Department of Medicine, University of Colorado School of Medicine, Denver, Colo.; Field Director, The Edward L. Trudeau Foundation, The Saranac Laboratory.

LEROY U. GARDNER, M.D., Director, The Saranac Laboratory; Fellow American Association of Pathologists and Bacteriologists; American Society of Clinical Pathologists.

FRANK H. HINMAN, M.D., F.A.C.S., Clinical Professor of Urology, University of California Medical School, San Francisco, Calif.; Member Southern Surgical Association, American Association of Genito-Urinary Surgeons, American Urological Association, Clinical Society of Genito-Urinary Surgeons; Fellow American College of Surgeons; International Association of Genito-Urinary Surgeons; Diplomate American Board of Urology.

HOWARD P. HOUSE, M.D., Los Angeles, Calif. Diplomate American Board of Otolaryngology; Member of the American Academy; Attending Physician in Ear, Nose and Throat at Los Angeles General Hospital and Children's Hospital. Instructor in Ear, Nose and Throat at the University of Southern California.

VERNE C. HUNT, M.D., F.A.C.S., Clinical Professor of Surgery, University of Southern California Medical School, Los Angeles; Diplomate American Board of Surgery; Fellow American College of Surgery; Member Pacific Coast Surgical Association; Western Surgical Association.

NOBLE WILEY JONES, M.D., F.A.C.P., Clinical Professor of Medicine, University of Oregon Medical School, Portland, Ore.; Diplomate American Board of Internal Medicine; Fellow American College of Physicians; Member American Gastro-Enterological Association; Association American Physicians; North Pacific Society of Internal Medicine; Fellow Royal Australasian College of Physicians.

ALFRED J. RIDGES, M.D., Salt Lake City, Utah. Diplomate American Board of Otolaryngology; Member Pacific Coast Oto-Ophthalmological Society.

HENRY STANLEY ROGERS, M.D., Petaluma, Calif., Prescrector of X-ray Laboratory of the Trudeau Sanatorium. ident, California Medical Association. (Representing the American Medical Association and the National Physicians' Committee.)

HOMER L. SAMPSON, D. Sc., Saranac Lake, N. Y. Director of X-ray Laboratory of the Trudeau Sanatorium.

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BUSINESS PROGRAM

COUNCIL AND HOUSE OF DELEGATES

SCHEDULE OF MEETINGS

Council Meeting

Monday, May 25, 2:00 P. M.
Tuesday, May 26, 8:00 P. M.

House of Delegates

First Session ..... Monday, May 25, 8:00 P. M.
Second Session ..... Tuesday, May 26, 9:00 A. M.
Third Session ..... Tuesday, May 26, 2:30 P. M.

Apportionment of Delegates

Apache	2
Cochise	2
Gila	2
Graham	2
Greenlee	2
Maricopa	8
Mohave	2
Navajo	2
Pima	6
Pinal	2
Santa Cruz	2
Yavapai	2
Yuma	2
Council	14

Delegates: Be sure and bring credential cards properly certified and present at ASSOCIATION REGISTRATION DESK.

(Note: Meetings of the House of Delegates are open to all members of the Association, only delegates having voting privileges.)

PROGRAM

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Monday, May 25th

2:00 p. m. **Meeting of Council**
Hassayampa Hotel

8:00 p. m. **House of Delegates**
Elks Lodge Room.

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Tuesday, May 26th

9:00 a. m. **House of Delegates**
Elks Lodge Room.

12:15 **Invitational Luncheon**
Hassayampa Hotel.
For Members, Delegates, Visitors and Guests.
Moving Sound Picture:
"Modern Advances in Sex Hormone Therapy."
(Courtesy Parke Davis Research Laboratory.)

2:30 p. m. **House of Delegates**
Elks Lodge Room

8:00 p. m. **Meeting of Council**
Hassayampa Hotel.

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Wednesday, May 27th

9:00 a. m. **GENERAL SESSION**

Call to Order
W. Paul Holbrook, President.
Invocation—Reverend Charles Franklin Parker.

Addresses of Welcome
For Yavapai County: Senator Paul Keefe.
For Prescott: E. A. McCabe, Mayor of Prescott.
For Yavapai County Medical Society:
Dr. John W. Flinn.

Response for the Association:
Dr. Clarence Gunter, Globe, Arizona

Annual Report of the President:
Dr. W. Paul Holbrook, Tucson, Arizona.

Introduction of the President-Elect.

Address of the President-Elect:
Dr. E. Payne Palmer, Sr., Phoenix, Arizona.
"Arizona Medicine in 1900 and Today."

Address: Dr Henry Stanley Rogers, President.
California State Medical Society, Petaluma, California.

11:45 a. m. **Memorial Service**
Historical Information. ..... .Dr. John W. Flinn
Music—Violin . .....Mrs. Charle Ewing
Prayer..... .....Rev. M. E. Travers, Prescott
Taps ....Richard Miller

12:15 to 1:45 **CLINICAL LUNCHEONS**

Medicine—Dr. John W Flinn, Presiding.
Subject: "Problems of Regimented Medicine in British Columbia, Australia, New Zealand."
Speaker: Dr. Noble Wylie Jones.

Surgery—Dr. C. E. Yount, Presiding.
Subject: "Carcinoma of the Colon."
Speaker: Dr. Verne Hunt.

Wednesday Afternoon

2:00 p. m. **GENERAL SESSION**

"The Relation of Chronic Infection to Arterial Diseases."

"Problems of the Low Grade Cholecystitis Patients."
Dr. Noble Wylie Jones.
Discussants: Dr. Chas. S. Kibler, Tucson.
Dr. Robt. S. Flinn, Phoenix.
Dr. W. Paul Holbrook, Tucson
Dr. Louis B. Baldwin, Phoenix.

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Wednesday Evening

Stag Party. Hassayampa Country Club
Barbecue and Entertainment.

●

Thursday, May 28th

9:00 a. m. **GENERAL SESSION**
SURGICAL MEDICAL SYMPOSIUM

I

"Malignant Lesions of the Stomach."
Dr. Verne Hunt, Los Angeles, Calif.
"Benign Lesions of the Stomach."
Dr. Joseph Bank, Phoenix, Arizona.

II

"Obstructive Jaundice."
Dr. Verne Hunt, Los Angeles, Calif.
"Non-Obstructive Jaundice."
Dr. Virgil G Presson, Tucson, Arizona.

12:15 **Clinical Luncheons**

Medicine: Dr. Jas. H. Allen, Presiding.
Speaker: To be announced.
Subject: To be announced.

Urology: Dr. Wm. G. Shultz, Presiding.
Speaker: Dr. Frank Hinman.
Subject: "Renal Hypertension."

●

Thursday Afternoon

2:00 p. m. **SYMPOSIUM AND PANEL DISCUSSION ON UROLOGY**

I

Leader: Dr. Frank Hinman, San Francisco, Calif. Clinical Professor of Urology, University of California Medical School.

1. **"Tumors of the Testis"**
   Discussant: Dr. M. L. Day, Phoenix.
2. **"Enlarged Prostate"**
   Discussant: Dr. Wm. G. Shultz, Tucson.
3. **"Carcinoma of the Prostate"**
   Discussant: Dr. John W. Pennington, Phoenix.
4. **"Uretero-intestinal Implantation and Its Application in the Treatment of Carcinoma of the Bladder."**
   Discussant: Dr. J. Braxton Littlefield, Tucson.
5. **"Hydronephrosis"**
   Discussant: Dr. Donald B Lewis, Tucson.
6. **"Renal Counterbalance"**
   Discussant: Dr. C. N Ploussard, Phoenix.
7. **"Non-specific Trigonitis Due to Trauma, Trichomonas, Leukoplakia, Pyogenic Infection with Urethritis"**
   Discussant: Dr. Preston Brown, Phoenix.
8. **"Submucous Fibrosis"**
   Discussant: Dr. Howard James, Tucson.

Thursday Evening

7:30 p. m. **Annual Banquet and Entertainment**
Hassayampa Hotel.
Toastmaster: Dr. James H. Allen.

●

Friday, May 29th

9:00 a. m. **GENERAL SESSION**
Elks Lodge Room.

PANEL DISCUSSIONS.
THE EYE, EAR, NOSE, AND THROAT IN GENERAL PRACTICE

I

"Some Things About the Eyes That Are of Interest to the General Practitioner."
Leader: Dr. Wm. A. Boyce, Los Angeles, Calif.
Collaborators: Dr. Franklin H. Maury, Tucson.
Dr. Paul Case, Phoenix.
Dr. Chas. S. Smith, Nogales.

II

"Headaches and Nasal Diseases"
Leader: Dr. A. J. Ridges, Salt Lake City, Utah.
Collaborators: Dr. John S. Mikell, Tucson.
Dr. O. W. Thoeny, Phoenix.
Dr. D. E. Brinkerhoff, Phoenix.

III

"Diseases Related to the Ear."
Leader: Dr. Howard House, Los Angeles, Calif.
Collaborators: Dr. C. R. K. Swetnam, Prescott.
Dr. J S. Walsh, Douglas.
Dr. Duke Gaskins, Phoenix.

12:15 **Clinical Luncheons**

Eye, Ear, Nose and Throat.
Dr. A. E. Cruthirds, presiding.
Speakers: Drs. Boyce, Ridges, House.

Chest Diseases—Fungus Infections.
Dr. Fred Holmes, Phoenix, Presiding.
Speaker: Dr. Leroy U. Gardner.

●

Friday Afternoon

2:00 p. m. **EYE, EAR, NOSE, THROAT SECTION**

Dr. C. E. Patterson, Tucson, Presiding.

"The Postnasal Space"
Dr. A. J. Ridges, Salt Lake City.

Subject to be Announced
Dr. Howard P. House. Los Angeles, Calif.

"Anesthesia and Measures of Safety in Ophthalmic Operations."
Dr. Wm. A. Boyce, Los Angeles, Calif.

2:00 p. m. **GENERAL SESSION**
Elks Lodge Room.

SYMPOSIUMS AND PANEL DISCUSSION
"Silicosis and Its Complications"
Leaders: Dr. Leroy U. Gardner, Saranac Lake, N. Y.
Don E. Cummings, Denver, Colo.
Homer L. Sampson, Saranac Lake, N. Y.

Committee on Industrial Health: Dr. O. E. Utzinger (Ray), Dr. C. P. Austin (Morenci), Dr. Kenneth Herbst (McNary).

Subcommittee on Silicosis: Drs. W. Warner Watkins (Phoenix), John W. Flinn (Prescott), Frank T Hogeland (Cananea), Wm. M. Schultz (Tucson), Fred G. Holmes (Phoenix), Louis B. Baldwin (Phoenix), Thos. A. Hartgraves (Phoenix), W. L. Minear (Patagonia).

Friday Evening

8:00 p.m. **Public Meeting**
Senior High School.

●

WOMAN'S AUXILIARY to the Arizona State Medical Association

OFFICERS

President—Mrs. B. B. Edwards .....Tucson
President-elect—Mrs. Harlan P. Mills .....Phoenix
First Vice-President—Mrs. Harold W. Kohl.....Tucson
Second Vice-resident—Mrs. O. W. Thoeny.....Phoenix
Recording Secretary—Mrs. H. S. Denninger.....Phoenix
Treasurer—Mrs. Norman D. Hall.....Phoenix
Directors—Mrs. V. G. Presson, Tucson; Mrs. J. D. Hamer, Phoenix; Mrs. Geo. C. Truman, Mesa.

COMMITTEES

Mrs. James H .Allen—General Chairman
Mrs. Harry T. Southworth

Registration and Credentials
Mrs. E. B. Jolley, Chairman
Mrs. E. A. Born

Courtesy
Mrs. H. T. Southworth, Chairman
Mrs, G. O. Bassett
Mrs. R. S. Looney
Mrs. J. R. Ness

Transportation
Mrs. Joseph P. McNally, Chairman
Mrs. Harry Lazar

Dinner Hostesses
Mrs. John Flinn, Chairman
Mrs. Henry A. Hough
Mrs. John E. Fahy
Mrs. Joseph P. McNally
Mrs. J. R. Ness

Luncheon Hostesses
Mrs. Henry A. Hough, Chairman
Mrs. Harold Brann
Mrs. Ernest C. Reed
Mrs. Harry Lazar
Mrs. Ernest Born
Mrs. Hill W. Howell
Mrs. Melvin Ochs

Tea Hostesses
Mrs. John Eugene Fahy, Chariman
Mrs. Fred Wilkiemeyer
Mrs. Harold Brann
Mrs. E. C. Reed

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AUXILIARY PROGRAM

WEDNESDAY, MAY 27

Wednesday Evening—7:00 P. M.
Informal "Roundup" .....Hassayampa Hotel

THURSDAY, MAY 28

Registration..... .....Monday Club

10:00 A. M.—General Session
Invocation..... Rev. Howard Hayes, Prescott
Address of Welcome... .Mrs. James H. Allen, President Yavapai County Medical Auxiliary, Prescott
Response..... Mrs. V. G. Presson, Tucson
Business Session..... Mrs. B B. Edwards, Tucson
President, State Medical Auxiliary, presiding
Roll Call
Report of Minutes
Report of the meetings of the Board of Directors

Reports of State Officers and Committee Chairnman:
President.....Mrs. B. B. Edwards, Tucson
First Vice-President and Organization Chairman.....Mrs. Harold W. Kohl, Tucon
Second Vice-President and Program Chairman.....Mrs. O. W. Thoeney, Phoenix
Corresponding Secretary....Mrs. J. B. Littlefield, Tucson
Treasurer.....Mrs. Norman D. Hall, Phoenix
Cancer Project.....Mrs. C. Lawrence von Pohle, Chandler
Exhibits.....Mrs. John Mikel, Tucson
Legislative.....Mrs. H. T. Southworth, Prescott
Parliamentarian.....Mrs. C. A. Thomas, Tucson
Publicity.....Mrs. Harold W. Kohl, Tucson
Public Relations.....Mrs. Edward Hayden, Tucson
Bulletin .....Mrs. Fred G. Holmes, Phoenix
Historian.....Mrs. Geo. B. Irvine, Tempe
Reports of County Presidents:
Maricopa County.....Mrs. Benjamin Herzberg
Pima County.....Mrs. J. D. Secrist
Yavapai Ciunty.....Mrs. James H Allen
Report of Registration and Credentials
Mrs. E. B. Jolley.....President
Report of Nominating Committee
Mrs. J. D. Hamer.....Phoenix
Election of Officers
Reports of Entertainment Committee
Mrs. James H. Allen.....Prescott
Report of Transportation Committee
Mrs. Joseph P. McNally.....Prescott
Address—"Responsibility of the Medical Profession and the Woman's Auxiliary in the Present Crisis"
Dr. Henry S. Rogers

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THURSDAY AFTERNOON

1:00 P. M.

Luncheon.....Recreation Room, Congregational Church

3:30 to 5:30 P. M.

Tea.....Mrs. John Eugene Fahy's Home Whipple Barracks, Prescott

7:30 P. M.

Dinner .....Hassayampa Hotel

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FRIDAY, MAY 29

10:00 A. M.—General Session—Monday Club

Greetings.....Mrs. H. T. Southworth, Prescott
Business Session.....Mrs. B. B. Edwards, Pres., presiding
Address—"Sexual Hormones and Their Effect Upon Normal and Abnormal Development"
Dr. Frank Hinman
Installation of Officers
Reading of Minutes

1:00 P. M.

Luncheon .....Country Club
Friday Evening.....Public Meeting

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COMMERCIAL EXHIBITORS

Don Baxter, Inc.
Blair Surgical Company.
Borden Milk Company.
Pet Milk Company.
Cutter Laboratories.
Ciba Products.
General Electric X-ray Corporation.
Phillip Morris.
Southwestern Surgical Company.

PRESIDENTS AND SECRETARIES OF THE ASSOCIATION SINCE ITS ORGANIZATION

Year Elected	President	Secretary
1892	J. A. Miller, Phoenix	J. W. Green, Tucson
1893	H. A. Hughes, Phoenix	L. D. Dameron, Phoenix
1894	Ancil Martin, Phoenix	L. D. Dameron
1895	P. G. Cotter, Yuma	L. D. Dameron
1898	D. M. Purman, Phoenix	L. D. Dameron
1897	Chas. H. Jones, Tempe	L. D. Dameron
1898	W. V. Whitmore, Tucson	O. E. Plath, Phoenix
1899	Win Wylie, Phoenix	O. E. Plath
		Chas. H. Jones, Tempe
1900	T. B. Davis, Prescott	Chas. H. Jones
1901	H. W. Fenner, Tucson	Chas. H. Jones
1902	Wm. Duffield, Phoenix	Chas. H. Jones
1903	L. D. Dameron, Phoenix	John W. Foss, Phoenix
1904	W. H. Ward, Phoenix	John W. Foss
1905	J. W. Coleman, Jerome	John W. Foss
1908	O. E. Plath, Phoenix	John W. Foss
1907	A. R. Hickman, Douglas	John W. Foss
1908	A. W. Olcott, Tucson	John W. Flinn, Prescott
1909	R. N. Looney, Prescott	John W. Flinn
1910	John W. Foss, Phoenix	John W. Flinn
1911	Francis E. Shine, Bisbee	John W. Flinn
1912	John E. Bacon, Miami	W. W. Watkins, Phoenix
1913	Ira E. Huffman, Tucson	C. E. Yount, Prescott
1914	John W. Flinn, Prescott	C. E. Yount
1915	Roy E. Thomas, Phoenix	C. E. Yount
1918	Robt. Ferguson, Bisbee	C. E. Yount
1917	W. A. Holt, Globe	C. E. Yount
1918	W. Warner Watkins, Phoenix	C. E. Yount
1919	C. E. Yount, Prescott	D. F. Harbridge*, Phoenix
1020	A. M. Tuthill, Morenci	D. F. Harbridge
1921	A. L. Gustetter, Nogales	D. F. Harbridge
1922	H. T. Southworth, Prescott	D. F. Harbridge
1923	C. A. Thomas, Tucson	D. F. Harbridge
1924	R. D. Kennedy, Globe	D. F. Harbridge
1925	R. D. Kennedy**, Globe	D F. Harbridge
Year Took Office		
1928	Geo. A. Bridge, Bisbee	D. F Harbridge
1927	Chas. S. Vivian, Phoenix	D. F. Harbridge
1928	A. C. Carlson, Jerome	D. F. Harbridge
1929	Samuel H. Watson, Tucson	D. F. Harbridge
1930	Joseph M. Greer, Phoenix	D. F. Harbridge
1931	Harry A. Reese, Yuma	D. F. Harbridge
1932	Clarence Ounter, Globe	D. F. Harbridge
1933	N. C. Biedsoe, Tucson	D. F. Harbridge
1934	Fred G. Holmes***	
	Meade Clyne	D. F. Harbridge
1935	C. R. K. Swetnam, Prescott	D. F. Harbridge
1938	Jesse D. Hamer, Phoenix	D. F. Harbridge
1937	C. R. Swackhamer, Superior	D. F. Harbridge
1938	Hal W. Rice, Bisbee	D. F. Harbridge
1939	Chas. S. Smith, Nogales	L. R. Kober, Phoenix
1940	D. F. Harbridge, Phoenix	W. W. Watkins, Phoenix
1941	W. Paul Holbrook, Tucson	W. W. Watkins
1942	E. Payne Palmer, Sr., Phoenix	W. W. Watkins

* Dr. Harbridge served 22 years as secretary due to method of election and time of taking office changing and overlapping.

** In 1925 the By-Laws were changed to provide for the election of a President-Elect, to be elected one year and take office the following year For this reason Dr. Kennedy served two years as president.

*** Dr. Holmes, the President-Elect, was compelled to resign before he became President, on account of illness, and the Council advanced the first Vice-President (Dr. Meade Clyne) to that office, and he became President at the 1924 meeting

LAST CALL for reservations for the Twentieth Annual Convention of the Woman's Auxiliary to the American Medical Association, which will be held at Haddon Hall, Atlantic City, New Jersey, June 8-12, 1942. Atlantic City extends a hearty welcome to you.

MAYTIME
MEDICAL MEETING TIME
PRESCOTT

Prescott is eagerly anticipating a large attendance at the Arizona State Medical Convention, from May 25 to 30.

Hospitality is the keynote. The hotels and tourist courts are ready to provide the accommodations you want. On Saturday, May 30, a golf tournament has been arranged. On Saturday night, the bowlers will battle it out for the trophies.

The Auxiliary is planning a good time for the ladies—something interesting for every day.

On Wednesday, May 27, there will be a barbecue and smoker for the men. On Thursday there will be a dinner dance for everyone.

Many scenic trips are possible. Near Prescott are many beautiful drives—Granite Dells, Granite Basin, and up into the pine-clad hills. Tuzigoot Ruins and Montezuma Castle are not far away, and the road is by way of copper-mining communities of Jerome and Clarkdale. For those more ambitious, trips can be easily arranged to Oak Creek and Grand Canyons.

The scientific program, including the round-table luncheons, is one of the finest ever offered to the Arizona medical profession.

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Make Your Reservations Now!

HOTELS

Hotel	Hassayampa	Head	St. Michael
Single room with private bath, per day	$3.50	$2.50	$2.00
Double room with private bath, per day	$4.50	$3.00	$2.50
Double room with twin beds and private bath, per day	$6.00	$4.00	$3.00

AUTO CAMPS

Shadow Croft	$2.25 to $3.50 per day for two persons
Prescott Motor Inn	1 large cottage, 5 persons, $5.00 per day 2 cottages, 4 persons each, $4.00 each per day
Dann Dee	$1.00 per person
Hassayampa Court	$2.00 to $10.00 per person
Del's	$1.50 to $ 2.75 per person
Don's	$2.00 to $ 4.00 per person
Tall Trees	$1.00 to $ 2.50 per person
Tri R Camp	$1.00 to $ 2.50 per person
Rocky View	$1.00 to $ 1.25 per person

J. P. McNALLY, Chairman, Reservations
Prescott, Arizona

of Neurosis. Many a man's emotional life may be found very much at variance with his intellectual life, and since the results of this variance have become a major social, economic and physical problem, a greater understanding and a more sympathetic and efficient treatment of the problem seems very much needed.

Neurotics, like the poor, have always been with us, but today we are more conscious of them than ever before. Though our information is still meager enough it is sufficient to enable us to understand something of the causes of the neuroses and to permit us to treat them, and to obtain favorable results.

Medical science has long been working to better man's lot; to make his life a longer, healthier one, and I think there is no argument that man's mental adjustment is an extremely important factor toward such accomplishment. Therefore, it is every physician's duty to give attention to this rather neglected field and incorporate it in his general practice. This he *must* do if he is honestly interested in obtaining maximum results.

THE NEUROTIC PATIENT

The general practitioner, in his contacts with psychoneurotic patients, frequently considers them a sort of nuisance. They bring to him a set of vague complaints which may be expounded with an almost endless variety and for which he can find no physical basis. Unfortunately, as often as not these patients are actually turned away from the physician's door.

If the physician gives the neurotic any time at all, he may, after a casual examination, strike off a prescription for a sedative, placebo, or tonic. Usually these produce no favorable result and soon the patient drifts on to other physicians or eventually, perhaps, to the irregular practitioner. Or the physician may respond to his patient's set of vague complaints with some such unsympathetic or thoughtless remark as, "You're crazy. There is nothing wrong with you. You just imagine you're sick." Such a reply is a confession of the doctor's complete lack of understanding of the case, for there could be nothing further from the truth than his offhand diagnosis. The patient is *not* crazy. There *is* something wrong with him and he does not just imagine it. These people are genuinely ill. Their symptoms are very real to them.

The patient is thus turned away from the licensed and otherwise reputable physician's door. The physician suffers a loss of revenue as well as some loss of faith in his ability. The patient then may shop around from doctor to doctor with no better results. Frequently he is forced into the hands of the irregular practitioner or psychic faddist. The care he receives there is worse than none at all and in the end he is fortunate if he avoids chronic invalidism. The only one who seems to profit is the incompetent cultist whose purse is filled with the harvest reaped from what the regular practitioner has cast aside.

It has been said* that each year $125,000,000 is spent in this country on the irregular practitioners and the cultist. This, together with $375,000,000 spent on patent medicines makes a total of more than $500,000,000 annually. An appalling sum! A large part of this $500,000,000 is spent by the psychoneurotics in their search for relief. It is easy to see that if a portion of this immense amount of money which passes into the hands of the irregular practitioner and vendors of patent medicines were to be distributed among general practitioners, they would be generously compensated for careful, sympathetic care of these unfortunate persons. Both patient and physician would benefit greatly.

There are, of course, some mitigating factors in the situation. The average physician, during his years of medical training, receives only a smattering of psychiatry, and as general thing, he is offered little opportunity to get acquainted with the psychoneuroses. He, therefore, enters his practice with a definite handicap in this direction. A definite handicap and a major one considering that a large percentage of his patients will present functional disorders, rather than distinctly organic entities.

For several decades past our medical schools have dealt primarily with physical hygiene. It would appear that a reasonable amount of energy and teaching could and should be expended in the field of mental hygiene as well. Because, whether he likes it or not, the general practitioner has the task of caring for these nervous and mental problems thrust upon him. How well he meets the task depends upon his training and experience in this field.

*Morris Fishbein, M. D., N. E. J. M., 11-12-36.

Needless to say most of the neuropsychiatric problems first present themselves to the general practitioner. If the question of handling mental problems were to be left to the neuropsychiatrists of the country, they would only be able to scratch the surface.

It has been said that fifty percent of the patients who come to the family physician are psychoneurotics. Surely this is a large enough percentage to warrant better training and more consideration from him. If half of sick humanity is to receive anything like adequate care, it is up to the man in general practice to tackle the problem. If he will take a more active interest in them and lend a more sympathetic ear to this type of patient, he will be well repaid.

The least he can do is to be a good listener and listening is one of the first considerations in treating these individuals. Every physician accepts in a measure the role of personal counselor to most of his patients. This will be nothing new to him. Then with a little more study, a little more patience, and by assisting the patient in analyzing his experiences the average physician can usually handle the emotionally unstable quite satisfactorily. The psychoneurotic patient demands that he be given an audience. He wants the opportunity and the time to completely unload his grief and woes.

Up until recent times, the average physician has looked upon psychiatry and psychotherapy as some mystical pseudo-science. In reality this branch of medicine is nothing more than a compound of common sense, average medical knowledge and some faculty for medicine as an art. Given an average medical background, the general practitioner need not hesitate to offer the neurotic patient simple psychotherapy.

TREATMENT

The treatment of the psychoneurotic patient resolves itself into an attempt to get the patient to understand why he is as he is, or how "he got that way." So far as treatment of the average patient is concerned, the therapeutic approach must be simple and straight-forward; the more specialized techniques being reserved for the more obscure cases where simple measures such as frank discussion and suggestion are of no avail. First, of course, a careful physical examination is essential, then the removal or treatment of any organic factors or foci of infection. The possible influence of the endocrines is to be kept in mind and special examinations, such as basal metabolism, electrocardiogram and serological examinations are to be used when indicated.

Medication is of very limited value. Narcotics and bromides should be avoided, and hypnotics are rarely necessary. If one feels that some simple bitter tonic or placebo is indicated, it should always be used with the thought in mind that the effects will depend upon the potency of the psychotherapy offered with it.

Rest cures or sanatorium care may be of value, primarily because they remove the patient from his usual environment and perhaps permit him to get a new slant on certain problems. Also, under such conditions the physician's psychotherapy may get across to somewhat better advantage. Considering how little we know of special diets and their influence on functional disorders it is difficult to see how rigid dieting could produce any favorable changes. Also, again there is danger that the patient may accept this regime as sound evidence that he is a very sick person.

After a careful check and elimination of any physical factors, the remainder of the treatment comes under the heading of psychotherapy. Again, there is nothing mysterious about this. In bringing his troubles to the physician, the psychoneurotic shows a certain confidence and hope that he will be given relief. He has perhaps visited many physicians in the past without results. His illness persists, but he still has hope. All this is a decided advantage to the physician if he wishes to seize the opportunity. Let him lend a sympathetic ear and give the patient plenty of time to unload his troubles and in many cases the problem solves itself. Regardless of the type of therapeutic approach, the aim in psychotherapy is to reestablish in the patient a sense of reality; to get him to view his problems rationally and to meet them in broad daylight.

This feeling of confidence, which first brings the patient to the physician must be carefully guarded and protected. His complaints and symptoms must not be treated lightly. The simple fact that he is given the opportunity to describe and discuss his difficulties is, in itself, a definite therapeutic help. This constitutes what we call aeration. The fact that he goes over and over certain painful situations of the past tends to knock off the sharp edges. Finally

he may come to the point where discussing these formerly painful situations no longer produces any emotional tension. Thus, he may be desensitized.

Throughout this procedure, the physician acts merely as a good listener, perhaps occasionally throwing in a question or a little suggestion. Later, as he becomes more familiar with the situation, he may add more definite suggestions. What is required then in handling these cases that a little sympathetic understanding, study, training and horse sense will not give the average physician?

CASE REPORT

I have in mind a man who is forty-three years of age and who complains as follows: "I am nervous. I can't stand up to the job. My neck is sore; I guess it is arthritis. I worry a lot. Something feels tight inside me. I get so jittery I am afraid I am going to lose my mind. Life doesn't seem to be worth much to me any more."

He is married and has four children. He is a salesman, traveling over several counties in one of our southwestern states. His business is good; he enjoys his work, except that he plays out easily and for periods of several days at a time he doesn't feel able to get out and tackle the job. His difficulties began in 1931.

The first symptoms were aches and pains in his legs, shoulders and elbows; also at that time he began complaining of nervousness. As the months went on he felt unable to relax, was restless and complained that he could not go to sleep without tremendous effort. "At times the harder I try, the longer I lie awake." Since 1931 these symptoms have become gradually more marked, until he has come to feel rather desperate. He tells of waking up at night with the feeling that the circulation has stopped in his extremities.

A careful physical and neurological examination reveals no evidence of any organic disorder. He is well developed, well nourished, and does not appear ill. Laboratory tests, including blood Wassermann, blood chemistry, urinalysis and spinal fluid examination were within normal limits. His general appearance and facial expression suggest moderate anxiety.

There is nothing outstanding in his family history. His father was a physician who lived to be eighty-six years of age. Just before the death of his father, the patient discussed his nervousness with him. The father gave him no real satisfaction but advised him to stay away from doctors in general, and especially advised him to avoid irregular practitioners. However, the patient consulted first one physician and then another throughout his state. One physician told him he had arthritis; another accounted for the pains in his legs by saying that he had prostate trouble. He then tells of various treatments, in particular a period of treatment at a certain mineral spring in Texas where he spent four to five hundred dollars and got no relief. He was under a physician's care and tells of receiving prostate treatments and colonic irrigations. Then he was treated in another institution, again without results; and more recently he has been treated by what he calls the "hokus pokus" doctors at still another place.

He describes what appear to be acute anxiety attacks which have been more marked in the past six months. He says, "Sometimes when I wake up that way with no circulation in my legs I feel of my heart and it is barely pumping. My heart has bothered me more in the past three or four months. There is a sort of ache in there around my heart; if I take any exercise it is worse, but the doctors have told me there is nothing really wrong with my heart. Anyway I always have the feeling that if I did not get up at once when those weak spells strike me, my heart would really stop beating."

He goes on to tell of his last hospital care at a clinic in Texas; says the doctors studied him from head to foot, taking X-rays, etc. They showed him a plate and pointed out on it "that my appendix looked dark. They thought there was something wrong there and suggested I have an operation, but I didn't want to be cut anymore, because every time they cut on me, they cut some more nerves. I had my tonsils out, also had a varicocele operation a few years ago. A little over a year ago I got so bad I was like the drowning man who would grasp at any straw. I listened to a radio program from a widely advertised "hospital," on prostate trouble, and like any man who is sick I thought I had everything I heard about. I went to the hospital but didn't have the $700 right then for the "technique" operation, but I found a doctor in another town who said he would do an operation like that for $60, so I let him do it."

When asked what the nature of this operation was he replied, "My kidneys were moving very freely; my legs were weak. When they told me about the prostate trouble I thought maybe I had it. They made a cut over the prostate and clamped some vessels and cut them. At least that is what they said they did, but I didn't feel any better after that. I went to a chiropractor and he gave me some adjustments for $35. Then a fellow I knew said I went to the wrong chiropractor, so I went to another one and he popped some of my bones. I know there is nothing to those things but I felt terrible. The worst was the "hokus pokus" doctor I met at G——. There were two or three of them there and they called themselves Magnetic Healers. Altogether, I have spent more than $3,000 and I feel worse now than I ever did."

He stated that he reached the ninth grade in school; left school to take a job in the ship yards in California, then served in the Marine Corps during the World War; took up farming after he was discharged. In 1925, he sold extracts, household remedies and patent medicines with fair success. A couple of years later he began selling typewriters. At the present time, he owns his own home and has three farms, all of which are mortgaged, but all of which are well rented and have more than paid their taxes in the past few years. He says he has worried over finances though there is no reason to do so—"I know I haven't anything to be greatly alarmed about, I still have a paying job and I am sure I will come out all right on the farms, but I just get an "all gone" feeling when I see other people on relief. Something inside me makes me afraid that I might get that way. I work hard. I want to put my boys through college if they will go."

He relates that he is quite happy in his home life, and says there has been no change in his sex life the past few years. He admits that he has had feelings that he is too highly sexed and that indiscretions of a sexual nature might lead to nervous or mental disorder. He describes his personality makeup as of a seclusive, withdrawing type. He never learned to dance; was always very conscientious, thinking constantly of how he could better his condition in life.

In subsequent interviews, he admitted that from time to time he has attempted to take stock of himself. He finds considerable discrepancy between his present achievements and his early ambitions. True, prior to 1929 he acquired some property and considered himself moderately successful, but with some reverses of recent years, he feels that he has definitely fallen short of his goal. In still later interviews, and after the establishment of confidence or "rapport," the patient told of certain marital discord and lack of harmonious sex life over which he had brooded and worried for many years, though he insisted this was not the cause of his illness. However, after going into these difficulties in some detail, he himself brought out the definite relationship between this discord and the long continued emotional stress, the latter acting more as a causative factor.

In handling such a problem as this, the role of the physician is simply to assist the patient in his effort toward readjustment to his life situation. The matter of outlining a regime of treatment in this case is obviously a difficult problem now, as against what it would have been five or eight years ago. Now he is expressing definite depressive trends, as noted in his remarks that life is hardly worthwhile anymore. An ideal procedure at this time would be to place the individual in a special institution with facilities for care of psychoneurotics, where he would have a full curriculum of activities. He should be kept busy eight to twelve hours a day with ample recreation. An attempt should be made to arouse new interests. With a series of therapeutic interviews, the outlook in this case should be hopeful. However, this individual is distinctly more ill now than he was five years ago. A little attention and simple care on the part of one of the physicians whom he contacted in those days would, in all probability, have shortened his illness. Again, it is to be noted that the financial outlay for various types of medical care has, as he says, been in excess of $3,000 in the past few years. For that considerable sum he received little that was beneficial and much that was harmful.

COMMENT

To summarize: Whether we, as physicians, like it or not, we live in a neurotic age. Though we may not be responsible for the trend of the times, doing what we conscientiously can to bring about a more balanced adjustment for

the emotional victims of the age is definitely our job. One that, as a whole, we are not doing as well as we might.

Many psychoneurotics are not receiving adequate care at the hands of the general practitioner and eventually drift into the hands of incompetent cultists. The prevalence and increase in number of the irregular practitioner is, in a measure, dependent on this situation, since these patients in desperation will grasp at any straw. Therefore, the regular practitioner has a moral obligation to this vast number of neuroties, as well as a professional obligation to himself and colleagues.

By sympathetic care on the part of the physician, the mentally sick may be saved from the incompetent cultists.

First National Bank Building.

Hormone Therapy in Gynecology

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BECAUSE of the large number of endocrines recently introduced, their questionable value, variable results and multiple conditions for which they have been recommended an attempt has been made to evaluate their clinical value from our present knowledge.

The character of many of the endocrine disturbances responsible for gynecological conditions is not as yet clearly understood and for this reason much of the endocrine therapy is based upon theoretic concepts. Some of the more frequently encountered gynecological conditions are reviewed in the hope that a more clear understanding of the clinical application may be attained.

THE MENOPAUSE

There are two main types of climacterics: The induced (radiologic and surgical), and the physiological or natural.

In the artificial or induced menopause, the symptoms are as a rule more sudden in onset and frequently more severe, the gradual change that occurs in the physiological climacteric frequently requires no therapy other than sedation (approximately twenty-five per cent will require some form of endocrine therapy)[1].

Amenorrhea as a symptom of menopause must be differentiated from amenorrhea due to pituitary failure. Recently through the 17-ketosterone determination we have a method of determining diminished pituitary function.

With cessation of ovarian function there is an associated hypertrophy of the pituitary gland which secretes an excess of follicle stimulating hormone. A distrubance of other glands at this time may also occur, chief of which is the thyroid. There is a diminished secretion of estrin, although evidence of continued estrin secretion may continue long after the ovaries have stopped functioning[1]. It is believed by some that the increase in the follicle-stimulating hormone is responsible for the severity of the menopausal symptoms, a relationship being present between the amount present in the urine and the severity of the disturbance[1]. Papanicolaou[2] has given us a diagnostic aid in determining estrogen deficiency by means of the vaginal smear.

The preparations used in treatment of this condition are related to a-estradiol, the estrogen produced by the ovary. The benzoic acid ester and dipropionate ester of estradiol are the ones considered most efficient, being more slowly absorbed and utilized[3].

The use of stilbestrol has recently received considerable publicity; through its action only is it related to the natural estrogens[4]. The unpleasant symptoms experienced upon its administration detracts from its efficacy. The unpleasant symptoms are present in from 10 to 60 per cent of the cases treated[5]. Its low cost and ability to relieve estrogen deficiency when taken by mouth is an advantage that may indicate its use in a limited number of cases.

Recently Geist and Salmon[6] have reported upon the use of ethinyl estradiol as an effective oral estrogen, it also produces unpleasant side effects in 18 per cent of cases. Further research will be necessary to eliminate the side effects in both of these before they will be superior to the physiologic estrogens. The sublingual administration and implantation of pellets or cystals is still in the experimental stage and additional evidence must be produced before it

is recognized as an effective method of estrogen administration.

Testosterone is very effective through its action of inhibiting the anterior pituitary gland, depressing the action of the follicle-stimulating hormone, in cases where bleeding may be stimulated by estrogens[1].

Functional Bleeding

This is one of the most disturbing and little understood conditions with which the gynecologist has to deal. The treatment with the use of endocrines is all that I will attempt to discuss.

Because of the widespread use of the gonadotropic hormones for this condition, a brief discussion of them is pertinent. The gonadotropic hormones are derived chiefly from three sources:

1. Animal pituitary, which yield mainly a follicle-stimulating hormone and very little of the luteinizing factor[13]. This hormone is insufficiently concentrated to produce therapeutic results in the human[13].

2. Pregnant mares serum yields a hormone believed to be identical with the anterior pituitary hormones and is potent enough to produce ovulation in women[17]. Its chief function should be retained for the treatment of sterility. Its use in functional bleeding cases is of little value[13].

3. Human pregnancy urine yields a gonadotropic hormone, (chorionic gonadotropin), its chief characteristic being the presence of a luteinizing principle, and is of definite value in selected cases of functional bleeding.

Synapoidin (Parke, Davis), recently released, seems to offer the most promising results but should not be used indiscriminately until more experimental work has been done. It is a combination of the anterior pituitary and chorionic factors.

Progesterone has been introduced as a rational form of therapy on the basis of its apparent lack and over stimulation of the endometrium by the estrogens, but it has not produced the clinical effects desired.

At present the androgens are considered the most effective form of therapy. Its physiological action seems based upon[1] inhibition of the gonadotropic activity of the pituitary[9]; and[2] suppression of follicle growth with consequent failure of estrogen and progesterone production, neutralizing the effects of the female sex hormone. In women of middle age the most effective procedure for the control of this type of bleeding is abolition of ovarian function by the use of X-ray or radium, unless it is felt that the sudden withdrawal of ovarian function may induct sever psychic disturbances and in these surgey is indicated in a limited number of cases.

Amenorrhea

Amenorrhea of endocrinopathic nature has been treated with thyroid, gonadotropic hormones and estrogens with inconstant results. Sevringhaus and Campbell[10] have reported good results using the various gonadotropic hormones when the ovaries were not refractive to stimulation. They used both the pituitary and the chorionic gonadotropins with apparent equally good results. Although it has been shown that the chorionic gonadotropic hormones may produce atrophy of the endometrium after prolonged therapy[11]. The combined therapy (Synapoidin) should be the most advantageous. Mazer and Ravetz[13] have reported the stimulation of menstruation in 18 to 23 girls, 11 of which had not menstruated for one or more years. Thyroid medication is of value because of its stimulating action upon the ovaries.

Dysmenorrhea

The value of endocrine therapy in the treatment of primary dysmenorrhea is based upon the physiological activity of the uterus. Novak and Reynolds[15] established that uterine motility was increased by estrogenic substances, and that progesterone decreases the motility of the uterus; they have concluded that the pain in primary dysmenorrhea is due to increased contractility of the uterus, dependent upon a faulty balance of the above hormones.

Progesterone because of its ability to relax the uterus is the product most frequently used and seems most effective. The individuals with hypolastic genitalia should be treated with the estrogens to stimulate the uterus to functional activity. The androgens have also been used in the treatment of dysmenorrhea, its function being the anti-estrogenic effect.

The chorionic gonadotropic substances have also been used because of their progestin-like function, with variable results.

Sterility

In sterility, the endocrines can be said to have

only a questionable value. Thyroid, through its stimulating action, should be used in both sexes. The other endocrinological defects should be corrected if possible, and the use of pregnant mares serum deserves a trial, although a carefully controlled study by Geist, et al[16] failed to show significant evidence of ovulation in the human after administration of this substance; this is in disagreement with other writers[17, 18], who have reported ovulation using this gonadotropic substance. Chorionic gonadotropic hormone has no place in the treatment of sterility[3] as it has been shown that it may cause trophy of the endometrium and it does not produce ovulation[7, 3]. The synergist action of hypophyseal gonadotropic hormone and chorionic gonadotropin (Synapoidin—Parke, Davis) has been shown to have marked stimulating action on the ovaries; as yet it has not been used in the treatment of sterility long enough to have proved its value.

Threatened Abortion

The endocrine therapy used in the treatment of threatened abortion has proved of considerable value. Progesterone used in doses of 1-5 mg. daily relaxes the uterus and aids in implantation of the placenta. Other endocrines are of little value in the treatment of this condition with the exception of thyroid which in many cases prevents the threatened termination of the pregnancy.

To summarize the action and indications for the effective endocrines used today in gynecology we may outline them as follows:

ESTROGENS

Action—

1. Stimulates the uterine growth and increases the contractility of the uterus.
2. Stimulates the proliferation of the basal cell layer of the endometrium.
3. Produces cyclic changes in the vaginal wall.
4. Stimulates the glandular and stromal components of the endocervix.
5. Deficiency causes increase in the folllicle stimulating hormone.

Indications—

1. Used most effectively in the treatment of ovarian deficiency.
   (a) Menopause.
2. Vulvovaginitis.
3. Missed abortion.
4. Senile vaginitis.

STILBESTEROL is still not as effective as the natural estrogens because of the side efficiency.

Indications are the same as for the natural estrogens.

PROGESTOGENS

Action—

1. Decreases the contractility of the uterus.
2. Transforms the endometrium into the secretory phase.
3. Necessary to the maintenance of pregnancy.
4. Stimulates acinar growth of the breasts.

Indications—

1. Threatened abortion.
2. Dysmenorrhea.

Table I
ENDOCRINE

	Action	Indication	Results
ESTROGENS—	Stimulate uterine growth	Menopause	Good
	Stimulate growth of endometrium	Ovarian deficiency	Variable
	Increase contractility of uterus	Vulvo-vaginitis	Good
	Increase vascularity of uterus	Missed abortion	Fair
	Stimulate secondary sexual characteristics		
	Produce cyclic changes in vaginal wall		
PROGESTOGEN—	Decrease contractility of uterus	Threatened abortion	Good
	Stimulates secretory phase of endometrium	Dysmenorrhea	Good
	Necessary to maintenance of pregnancy		
	Stimulates acinar growth of breasts		
ANDROGENS—	Gonadotropic activity of pituitary inhibited	Functional bleeding	Good
	Endometrium becomes atrophic	Dysmenorrhea	Variable
	Vagina shows estrogen deficiency	Menopausal Syndrome with bleeding	Fair
GONADOGENS—	Ovarian Stimulant	Sterility (Pregnant mares serum)	Questionable
		Functional bleeding (chorionic gonadotropic hormone)	Fair
		Ovarian deficiency (combined)	Variable
		Amenorrhea (combined)	Variable
THYROID—	Ovarian Stimulant	Low metabolic activity	Good
		Ovarian deficiency	Good
		Sterility	Good
		Amenorrhea	Variable
		Functional bleeding	Variable

GONADOTROPIC HORMONES

Action—

1. Ovarian stimulant.
   (a) Anterior pituitary gonadotropins.
   (a1) Stimulate follicle formation.
   (a2) Stimulate ovulation and luteinization in animals; in humans, ability to stimulate ovulation questionable. (Equinine Gonadropin substance most concentrated).
   (b) Chorionic gonadotropic hormone.
   (b1) Luteinizing stimulant.
   (b2) May cause endometrial atrophy.

Indications —

1. Sterility.
   (a) Pregnant mares serum or synergistic action of anterior pituitary and chorionic gonadotropic substance (Synapoidin) most effective, either of questional value.
2. Functional bleeding.
   (a) Chorionic gonadotropic substance.
   (b) Combination of gonadotropic substances may be tried.
3. Hypo-ovarian function.
4. Amenorrhea.

ANDROGENS

Action—

1. Gonadotropic activity of the anterior pituitary inhibited.
2. Follicle growth and ovulation of the ovary are suppressed.
3. Menstruation is suppressed with atrophy of the endometrium.

Indications—

1. Functional bleeding.
2. Dysmenorrhea and ovulatory pain.
3. Menopausal symptoms with the presence of bleeding.
4. Painful and engorged breasts.

THYROID

Action—

1. Ovarian stimulant.

Indications—

1. Low metabolic activity.
2. Ovarian deficiency.

Table II

HORMONE	Pharmaceutical Name	Distributor
ESTROGENS—		
a—Estradiol (dihydroxyestrin)	Ovocylin	Ciba
a—Estradiol	Dimenformon Benzoate	Roche-Organon
a—Estradiol Benzoate	Ben-Ovocylin	Ciba
a—Estradiol Benzoate	Progynon-B	Schering
a—Estradiol Dipropionate	Di-Ovocylin	Ciba
Extrone (Ketohydroxyestrin)	Estrone-Abbott	Abbott
Estrone	Estrone-Lilly	Lilly
Estrone	Theelin	Parke-Davis
Estrone	Estrogenic Substance	Sharp and Dohme
Combined Estrogens	Amniotin	Squibb
Estriol (oral)	Estriol-Lilly	Lilly
Estriol (oral)	Estriol-Abbott	Abbott
Estriol (oral)	Theelol	Parke-Davis
Estriol glucuronate (oral)	Emmenin	Ayerst
a—Estradiol (oral)	Progynon-D. H.	Schering
Estrone-Estradiol-Equilin (oral)	Urestrin	Upjohn
Diethylstilbestrol	Stilrone	Abbott
Diethylstilbestrol	Stilbestrol-Lilly	Lilly
Diethystilbestrol	Stilbestrol-Winthrop	Winthrop
Diethylstilbestrol	Estrobene	Ayerst
Diethylstilbestrol	Stilbestrol	Upjohn
PROGESTOGENS—		
Progesterone	Lutocylin	Ciba
Progesterone	Proluton	Shering
Progesterone	Lipo-Lutin	Parke-Davis
Progesterone	Progestin	Lilly
Pregneninolone (oral)	Progesterol	Roche-Organon
Anhydro-hydroxy-progesterone (oral)	Pranone	Schering
GONADOTROPIC-HORMONES		
Anterior Pituitary	Prephysin	Chappel
Anterior Pituitary	Polyansyn	Armour
Anterior Pituitary	Gynartin	Searle
Anterior Pituitary	Gonadotropic Factor	Ayerst
Pregnant Mares Serum	Gonadin	Cutter
Pregnant Mares Serum	Gonadogen	Upjohn
Pregnant Mares Serum	Anteron	Schering
Chorionic gonadotropins	Follutein	Squibb
Chorionic gonadotropin	Antuitrin-S	Parke-Davis
Chorionic gonadotropin	A. P. L.	Ayerst
Chorionic gonadotropin	Pranturon	Schering
Chorionic gonadotropin	Antophysin	Winthrop
Combination (Ant. Pituitary & Chorionic)	Synapoidin	Parke-Davis
ANDROGENS—		
Testosterone propionate	Perandren	Ciba
Testosterone propionate	Oreton	Schering
Methyl testosterone (oral)	Metandren	Ciba
Methyl testosterone (oral)	Oreton-M	Schering
Methyl testosterone (oral)	Neo-Humbreol (M)	Roche

3. Sterility.
4. Amenorrhea.
5. Functional bleeding.

The therapeutic efficacy of the endocrine preparations have much to offer in the field of gynecology. They should not be used routinely for the many conditions for which they have been recommended until a careful study of each patient has been made to determine their indication, potential dangers and ability to produce the effects desired.

The recent advances in the gonadotropic substances have not offered all of the advantages hoped for and should be used sparingly until more confirmatory work has been advanced as to their nature and ability to function in the human as in laboratory animals.

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AMERICA AT WAR

WAR GASES

The substances used in chemical warfare may be employed as clouds of vapor liberated from cylinders and carried with the wind; or as liquids and solids contained in bombs, shells, or grenades, which after explosion liberate poisonous or irritant vapor or droplets. Similar substances may be sprayed or dusted from airplanes. They are all spoken of as "gas," and may affect the body by being breathed as fumes or mist, by being sprayed or splashed on as droplets or fine particles. Persons also may be dangerously affected by coming in contact with contaminated objects, such as ground, foliage, plants, bushes, implements, and other objects, and even the skin and clothing of other persons who have been contaminated with gas. The chemicals used may irritate the eyes, nose, and throat, damage the lungs, or burn and blister the skin, nose, throat, or stomach.

Prevention of contamination and protection from gas are based chiefly on the use of gas masks, gas-proof clothing, and gas-proof shelters. The segregation of gassed individuals in separate gas decontamination stations is essential not only for their own proper treatment and decontamination but also to prevent further danger to other injured persons who have not been exposed to gas.

Where such gas decontamination stations are available, all gassed individuals should be promptly taken to them to receive adequate care from specially trained and equipped gas defense personnel. If these stations and this care are not available, first aid should be given as indicated by the following:

Types of Gas and First Aid for Each

1. Tear Gases or Eye Irritants *(as bromo-benzyl-cyanide).*
   a. Odor: Either like flypaper or like apple blossoms.
   b. Effects: Burning pain in eyes, copious tears, spasm of lids. Effect temporary.
   c. First Aid: Remove from contaminated air. Face the wind and avoid crowding. Avoid rubbing the eyes. Do not bandage the eyes. Generally, no treatment is necessary. In severe lasting cases, wash with cold water or weak boric, saline, or baking soda solution.
2. Sneeze Gases or Nose Irritants *(as diphenyl-cyanoarsine).*
   a. Odor: Slightly like coal smoke, yellowish cloud. Or grayish smoke cloud without odor.
   b. Effects: Aching pain in head, face, nose, throat, chest. Sneezing and coughing. Sometimes partial paralysis of one or more limbs. Sometimes vomiting. Mental depression. Effects severe but temporary.
   c. First Aid: Flush nose and throat with weak solution of baking soda (sodium bicarbonate) or breathe fumes of bleaching powder in a wide-mouth jar. Drink baking soda solution freely if vomiting. Warn

victims that symptoms will increase for some time. Try to allay fear and avoid panic.

3. Choking or Lung Damaging Gases *(as chlorine or phosgene).*
   a. Odor: May smell like new cut hay or mouldy hay, but pungent and disagreeable, or may have sweetish odor.
   b. Effects: In low concentrations — brassy taste, headache. Effects delayed but serious. Soreness in lungs, coughing.
      In higher concentrations — coughing, throat spasm, retching, tight feeling in chest, blueness of face, increased pulse and breathing rate. Victim may collapse without previous warning following sudden exercise.
   c. First Aid: Absolute rest is essential even when no symptoms appear. Keep lying down and transport on a stretcher. Do not permit to walk to first aid post even though they may insist they are perfectly able to do so. Keep warm. Do not give artificial respiration in the hope of relieving difficult breathing, as it may do serious damage. Hot coffee or tea may be given.

4. Blister Gases.
   a. Odor: Like geraniums, then biting *(lewisite).* Like garlic or horseradish *(mustard gas).*
   b. Effects: Extremely powerful, persistent, and dangerous. Onset of action may be delayed 24 hours, but first aid care must be prompt to be effective. Burning of eyes with acute inflammation. Itching, burning, and blistering of skin. Severe pain in chest and brassy cough if breathed. Vomiting and pain in stomach and abdomen if swallowed.
   c. First Aid: Act rapidly. Degree of burning depends upon promptness of first aid given. Wash off with running water and soap. Daub washed skin with cloths moistened in benzine, kerosene, alcohol, or ether, or with straight gasoline (not ethyl) or carbon tetrachloride (pyiene).) Do not rub. The fumes of many of these solvents are explosive; therefore, avoid sparks, cigarettes, or flames during this procedure. Destroy used cloths or cleaning tissue by burning or burying. For early or immediate use, bleaching powder (chlorinated lime) made into a cream paste with water will neutralize, but this is dangerous in later stages. Wash it off with alcohol after five minutes. Irrigate the eyes with cold water or a weak solution of boric acid, common salt, or baking soda. Clothing retains the gas and must be removed for decontamination, and fresh clothing supplied for the victim. Great care must be used in handling the victims and their clothing to avoid contamination and secondary gassing of the attendant personnel. Avoid inhaling the gas and use rubber gloves or treat your hands at once. The hands and gloves should be frequently washed with hot water and soap. Transport on a stretcher.

5. Paralyzing Gases *(as hydrocyanic acid or hydrogen sulfide).*
   a. Odor: Like bitter almond or like rotten eggs.
   b. Effects: Slight headache. Loss of consciousness. Convulsion. May stop breathing.
   c. First Aid: Remove to fresh air. Give artificial respiration if needed. Give first aid for shock. Transport on a stretcher.

6. Screening Smokes *(as phosphorus or chlorosulphonic acid).*
   a. Odor: Acid, aerid, or suffocating. White smoke from phosphorus smells like matches.
   b. Effects: The smoke alone may give a mild prickling sensation, but is harmless. However, when a phosphorus bomb explodes, if particles of phosphorus strike the skin they cause severe deep burns, which heal very slowly.
   c. First Aid: The phosphorus particles must be removed before giving the usual care for burns, since phosphorus continues to burn in unless removed. Immerse the wound in hot water, which melts the phosphorus, and it can then be sponged out with a gauze pad. If cold water only is available, the particles will not melt, and must be picked out under water. Phosphorus will reignite on exposure to air. If available, copper sulfate solution (2 to 5 per cent) may be applied, which coats the phosphorus with copper and stops burn-

ing, and the particles can be lifted out. After either method of removal, care for like an ordinary burn.

Those rendering first aid must be able to recognize gas cases so that they may take the necessary precautions to avoid contamination of themselves and others. Avoid inhaling the fumes. Wear a gas mask while working on gassed persons, and use rubber gloves if possible. The gloves and hands must be washed frequently and treated with the proper chemical to counteract the type of gas in use—Supplement No. 2, *The American Red Cross First Aid Textbook*.

PROCUREMENT OF MEDICAL PERSONNEL

"When the bombs fell on Pearl Harbor, the medical profession was not caught short!" So said Major Sam Seeley in a talk to the New Jersey Hospital Association at New Brunswick, January 15, 1942. Major Seeley, Medical Corps, United States Army, is Executive Officer of the Procurement and Assignment Service. To this service falls the duty of finding qualified physicians for vacancies in the Army, Navy, Public Health Service, Veterans' Administration, United States Civil Service and all other government agencies, industrial, military and civilian. His aim, he explained, is "to fit the round pegs in the round holes." It is hoped to assign each doctor to the work for which he is best qualified. This is possible because of the registration of physicians conducted at the request of the Surgeon-General by the American Medical Association in the summer of 1940, because of the cooperation of state medical societies in that program, because of the help offered by specialized medical societies, and because of the internal machinery of the Procurement and Assignment Service itself. Major Seeley's talk answered a number of queries commonly raised by doctors. Following is a list of hypothetical questions to which Major Seeley's address provided the answer:

Will the Government bring pressure on physicians engaged in essential civilian tasks, to enter the armed forces?

There will be no raiding of civilian institutions and agencies. It is hoped that wherever a physician under the age of 45 is essential to a hospital, medical school, health department, medical society or industry, he will seek to train an older (or physically ineligible) physician for that task so that the former may be released for more active duty. An absolutely essential practitioner of any age, however, will be permitted to remain in civilian life if his indispensability is clear.

Who will determine indispensability?

Special boards of physicians have been set up in each Corps Area; to them special state boards will be responsible. The actual investigation of the doctor's status will be conducted by local boards composed of practitioners who know the community's needs. These local representatives will not make the decision; they will merely report the facts in a consultative capacity.

How are a specialist's qualifications determined?

For some time now, many agencies have been cooperating on this. These include the specialty medical societies, the examining boards, the offices of the National Resources Planning Board, and other agencies having special facilities for this work. On the basis of these studies, each specialist is rated, and a confidential report of his standing is submitted to the Procurement and Assignment Service.

What are the "classes" of specialists?

Specialists are grouped in four grades. In class 1 are men who are definitely "outstanding" specialists of national standing. In class 2 are men who can take care of all branches of their specialty without supervision and with full responsibility. Class 3 includes competent assistants, capable of assuming responsibility when necessary, while in class 4 are placed men still training in a specialty, or those men engaged in specialized practice who are not yet ready to assume class 3 responsibilities.

May a man secure his specialty rating by writing for this information?

No, the classifications are confidential.

How many physicians does the Army need?

On November 1, 1940, the War Department needed 1400 physicians to complete its tables of organization. The Army has, of course, expanded since then, and consequently more physicians are needed. For reasons of military policy, the exact figures are not being made public.

Are physicians needed in all ranks?

Most of the vacancies are in the rank of first lieutenant and captain.

May a civilian receive a senior rank when entering service?

The Secretary of War is authorized to issue new commissions in any rank up that of Colonel. This will be done as the needs of the Army demand, the rank assigned depending on the age, qualifications, hospital status, skills and experience of the applicant. It is considered appropriate, however, to protect the seniority of medical officers in the Reserve Corps, National Guard and Regular Army, who have earned promotion, but who have not yet been promoted because of lack of vacancies in the higher grades. In general, first choice will be given to these men when vacancies develop, other things being equal.

Is the Medical Reserve Corps now receiving applications for new commissions?

No, the Reserve Corps is closed; but physicians may apply for commissions in the Army of the United States. Such commissions are for the duration of the war plus six months unless vacated sooner by the War Department.

May physicians under the age of 45 be drafted as private soldiers?

Nothing in the Selective Service Act forbids this, though it will be the policy of selective service to defer physicians applying for commissions until they can receive such commissions and enter the Army of the United States with officer status. Any physician placed in class 1A by his local draft board, who is faced with the possibility of early induction as a private soldier, may appeal this classification and could, if necessary, carry his appeal to the State Director and ultimately the National Director of Selective Service.

How many physicians in the country are now under the age of 45?

About 60,000 of the country's 185,000 doctors are under the age of 45.

What is the status of medical students?

A. All students holding letters of acceptance from the Dean for admission to medical colleges and freshmen and sophomores of good academic standing in medical colleges should present letters to their local boards. This is necessary to be considered for deferment in Class II-A as a medical student. If local boards classify such students in Class I-A, they should immediately notify their deans and if necessary exercise their right of appeal to the Board of Appeals. If, after exhausting such rights of appeal, further consideration is necessary, request for further appeal may be made to the State Director and if necessary to the National Director of the Selective Service System. These officers have the power to take appeals to the President.

B. Junior and senior students, physically disqualified for commissions, are to be recommended for deferment to local boards by their deans. These students should enroll with the Procurement and Assignment Service for other assignment.

C. All junior and senior students in good standing in medical schools should apply immediately for commission in the Army or the Navy. This commission is in the grade of Second Lieutenant, Medical Administrative Corps of the Army of the United States, or Ensign H. V. (P) of the United States Navy Reserve, choice as to Army or Navy being voluntary. Applications for commision in the Army should be made to the Corps Area Surgeon of the Corps Area in which the applicant resides and applications for commission in the Navy should be made to the Commandant of the Naval District in which the applicant resides. Medical R. O. T. C. students should continue as before with a view of obtaining commissions as First Lieutenants, Medical Corps, upon graduation. Students who hold commissions, while the commissions are in force, come under the jurisdiction of the Army and Navy authorities and are not subject to induction under the Selective Service Act. The Army and Navy authorities will defer calling these officers to active duty until they have completed their medical education and at least 12 months of internship.

Should a physician with an obviously disqualified physical defect fill out the enrollment blank for the Procurement and Assignment Service?

Yes. A doctor may have a defect which disqualifies him from Army or Navy Service, yet he may be valuable in a Veterans' Hospital, in a Civilian Defense position, at a public health post, etc. Every physician responsive to his country's call should fill in the enrollment blank when it is mailed to him.

—*J. Med. Soc. N. J.*

REJECTEE REHABILITATION

Tests of a physical rehabilitation program, intended to make many registrants who were rejected because of minor physical defects fit

for active military service, have been authorized in Maryland and Virginia, National Headquarters, Selective Service System, has announced.

Authorization of the rehabilitation programs in the two States marks the beginning of a long-planned nation-wide physical rehabilitation campaign. When the results of these pilot tests are evaluated, a date for the inauguration of the National program will be set.

Only those registrants whose disabilities are certified by the Army as being remediable will be eligible to undergo treatment.

As one of the first steps in the Maryland and Virginia test programs, the Director of Selective Service Headquarters lists of physicians and dentists qualified to correct physical defects of registrants. Physicians and dentists designated to render these authorized professional services will be paid by the Federal Government.

National Headquarters emphasized that any physician or dentist can apply to be designated to assist in the rehabilitation program. Physicians and dentists not already designated by registrants as their choice for dental or medical treatment, and other physicians and dentists who wish to take part in the program, may obtain the necessary application forms from their local boards.

CARE OF BABIES IN AIR RAIDS

Instructions as to the special care of babies in the event of an air raid, based in part on the experience of London and other English cities, are made public by the American Committee on Maternal Welfare.

In view of the general possibility of air raids on American cities, particularly in the coastal zones, the committee regards it as important that American mothers understand and prepare well in advance for the task of protecting their babies. The committee is composed of the leading medical, public health, nursing and hospital organizations of the country and can thus speak with authority.

Aside from the immediate need of shelter from bomb explosions, the most important fact to keep in mind, the English have learned, is that the mother's mental attitude is baby's best guarantee against air-raids.

"However frightened you may feel," the committee quoted from instructions issued by the British National Baby Welfare Council, "keep outwardly calm and unflurried, so that the child's confidence in your own protectiveness may not be shaken.

"Never speak of the raid in the child's hearing if you can avoid it. Mental impressions are formed very much earlier than most people realize. Many of the problem cases among grown-ups of the present day owe their condition to their parents having talked continually in the presence of the chidren about past and future air raids, about their own terror, and the effect of this on the child. he following words are as true today as when they were written thousands of years ago: 'In quietness and confidence shall be your strength.'"

When the raid signal sounds, the first move should be in the direction of the nearest shelter. If there is no shelter, take the baby to the safest room in the house, or to a closet under the stairs or under a table or bed, so that he may be protected from flying debris, which presents the most frequent danger.

Take with him garments enough to keep him warm according to the season, a basket or pillow on which he can lie, a first aid outfit in case of need; a toy to amuse him; his bottle of milk and bottle of water, together with extra diapers and related equipment.

The baby's ears should be blocked with cotton wool to minimize the effects of concussion, leaving plenty outside so that it may be easily withdrawn afterward.

If the raid should come while the baby is away from either house or shelter—for an airing in the park, for instance, find the nearest wall or ditch, however low, place the baby on the ground beside it, with pillows from the baby carriage or a heavy coat under and over him, and lie down beside him.

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SOCIETY ACTIVITIES

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Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

Chaves County Medical Society annual dinner meeting was held at Nickson Hotel, Roswell, December 16, 1941. The following officers were elected for 1942: Dr. E. J. Hubbard, Dexter, N. M., President; Dr. U. S. Marshall, Roswell, Vice-Pres.; E. W. Lander, Roswell, Sec.-Treas. Program was presented by Dr. Louis W. Breck, of El Paso, Texas—a discussion of Internal Derangement of the Knee, illustrated by a colored movie film.

Regular meeting of the Society on February 3, 1942 was presided over by Dr. E. J. Hubbard. Program was presented by Dr. Stuart W. Adler, State Director of Maternal and Child Welfare Department. Some problems of the department and their relation to the profession were discussed. The Society approved the showing of the film "When Bobbie Goes to School". An interesting film on the tuberculosis problem in the Navajo country was enjoyed .

Reported by E. W. Lander, M. D., Sec.-Treas.

The regular meeting of the McKinley County Medical Society was held on Wednesday evening, February 25, 1942, at St. Mary's Hospital, Gallup, New Mexico.

In regard to the enforcement of the ordinance relating to stray dogs, it has been noted that the Chief of Police recently had an article in the local newspaper, warning that after a certain date all dogs without license tags would be apprehended.

No report was given by committee chairman who was to contact coordinator of local Defense Council concerning organization of Civilian Defense, in regard to hospital, doctors and nurses.

Committee on Public Health program reported on expense for these publications in local newspaper. The Society voted to finance this program for one year and instructed the committee to proceed with the plan as outlined at last meeting.

Literature has been received from the National Physicians' Committee asking cooperation and funds for special war effort program. This material is to be left out in Medical Record Office, St. Mary's Hospital, for members of Society to review.

It was decided that committee in charge of securing motion picture films, for presentation at meetings, would stand the expense of same for six months and then prorate cost between members.

Ways and means of improving the local Indigent Clinic Service were presented. General discussion followed. It was decided that each doctor would take service for three months, instead of rotating each week, to stimulate more interest in this work, and also to provide better individual care of each patient. Rotation to be in alphabetical order, as before, but doctors on service name alternate in case of absence from town, and may also have clinic at time of day best suited to him, so as not to conflict with his private work. Dentist is to be contacted to arrange for free dental service when needed.

Program: Four reels of colored films were shown, two on Vaginal Repair of Cystocele and Rectocele (Dr. Arthur H. Curtis, Northwestern University Medical School), and two on Surgical Treatment of Varicose Veins and Ulcers (Dr. Gerald H. Pratt, N. Y. Portgraduate Medical School).

Following showing of these films, Dr. Anthony reviewed two cases of varicose veins which he had treated by technique similar to that illustrated in films. He also described the Bohler technique of applying unpadded plaster of paris

splints and explained aftercase. X-ray pictures were shown of a patient with comminuted fracture of tibia and fibula, who has received this treatment with successful results, so far.

Reported by W. D. Anthony, M. D., Secretary.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

At the regular meeting of the City-County Hospital Staff, Wednesday, February 18, 1942, the program was:

Presentation of Medical Set-up for Civilian Defense.....Dr. H. H. Varner
Dr. T. J. McCamant

A regular Staff Meeting of the Hotel Dieu Sister's Hospital, was held March 3, 1942. The program:

1. Review of the yearly Medical Report for 1941.....Dr. C. E. Jumper
2. Nasal accessory sinusitis, Meningitis .....Dr. S. G. Von Almen

Discussion.....Dr. F. P. Schuster
Dr. M. E. Hart

The regular meeting of the El Paso County Medical Society was held in the Tea Room of the Hotel Cortez February 9, 1942. The meeting was presided over by Dr. Barrett, President. The minutes of the previous meeting were read and approved.

A paper entitled "Some Observations of the Pathogenesis of Appendicitis", with presentation of colored photomicrographs, was presented by Dr. L. O. Dutton. Discussion by Dr. Stowe, Dr. Waite, Dr. Gorman, Dr. Hart, Dr. King. Closed by Dr. Dutton.

Dr. Will Rogers suggested that medical examiners for Local Draft Boards follow instructions from Fort Bliss Induction Center.

Dr. Breck made a motion that the letter to the City Council dated May 30, 1940 concerning compulsory diphtheria immunization be given to newspaper for publication; seconded by Dr. Brown Randel. Discussion by Dr. Gorman, Dr. Will Rogers and Dr. Barrett. Motion failed to carry.

Meeting adjourned.

The regular meeting of the El Paso County Medical Society, presided by Dr. Barrett, President was held February 23, 1942 in the Tea Room of the Hotel Cortez.

Dr. N. D. Buie, President of the Medical Association of Texas was the guest speaker. The subject: The Activities of the State Medical Association, with special reference to the War." He discussed the procurement and assignment of physicians for the military and civilian defense.

The regular business of the Society was postponed.

At the El Paso County Medical Society meeting March 9, 1942, this program was given:

"Purposeful Splinting of the Hand".....
.....Captain William H. Frackelton,
Wm. Beaumont General Hospital

Discussion by.....Louis W. Breck, M. D.

MISCELLANY

PHYSICIANS NEEDED IN THE PANAMA CANAL ZONE

Physicians are urgently needed at the Panama Canal—one of the nation's most vital defense areas.

The U. S. Civil Service Commission has just announced an examination to secure physicians for these important positions. The entrance salary is $4,000 a year, and free transportation by boat or plane is furnished from port of embarkation, the salary beginning on the date of departure from the United States. Applications will be accepted by the Commission in Washington, D. C., until further notice. There is no written test.

Applicants must have been graduated from a Class A medical school with a degree of M. D. subsequent to May 1, 1920, and, in addition, must have had at least 1 year of experience in a hospital since graduation. Graduates from schools which require the completion of the internship before granting the M. D. degree (five-year schools) will be regarded as having met the hospital experience requirement. Applicants must not have passed their fiftieth birthday; however, because of the arduous duties in the tropical climate, applicants between 25 and 35 years of age are preferred.

Applicants must be in sound physical health; they must be active and capable of arduous work. Although appointees are required to pass a thorough medical examination, the physical requirements are not as high as for the army or navy service.

The duties of the position are to serve as District Physician in a small Government dispensary; have general supervision over all medical and surgical activities in the dispensary; operate a general medical and surgical clinic; examine persons entering The Panama Canal Service; visit patients day or night in their homes and on board ship; and to be in charge of business activities of the dispensary.

Further information is given in the announcements which may be obtained, with application forms, at any first- or second-class post office, or from the U. S. Civil Service Commission, Washington, D. C.

ABUSE OF ELECTROCARDIOGRAM

There is another way in which these curves are often misused; some physicians still attempt to secure information about the prognosis from the electrocardiogram, although it has been shown again and again that this is usually impossible. In acute diphtheritic myocarditis, rapidly progressive changes in the ventricular complexes may justify the fear that death is imminent, and in occasional cases of acute myocardial infarction, similar progressive alterations may arouse the suspicion that the area of injury in the heart is larger and more serious than the clinical signs indicated. But even in these acute conditions, the graphic records must be interpreted in the light of the clinical evidence, while in chronic heart disease it is the clinical picture and laboratory data as a whole that must be used as the basis for estimating the prognosis.

Finally, and this is really but an amplification of my first criticism, misinterpretation of the electrocardiogram is responsible for a very large number of unjustified diagnoses of heart disease. The diagnosis of coronary disease is being made today almost as freely as that of vitamin deficiency, and with far less justification. But I doubt if many physicians other than those who specialize in this particular field realize the extent of this error or the tragic consequences that often follow. I am speaking with deliberate conservatism when I say that every week scores, if not hundreds, of normal healthy subjects are restricted in their activities and made to suffer needless apprehension because of diagnoses of heart disease based on minor changes in the electrocardiogram alone, in the absence of all supporting clinical evidence. This statement is amply warranted by my own experience, but I do not limit it to my practice or to the State of Connecticut. Like all others who specialize in this restricted field, I see many curves taken in various parts of the United States, brought to me for the most part by patients who have been condemned to a life of semi-invalidism solely because of changes in the electrocardiogram. In most cases, these changes consist of such unimportant alterations as minimal slurring of the R or S wave in one lead, low voltage of the ventricular deflections in one or two leads, and the presence of a large Q wave or inverted T wave in Lead 3. My friends and colleagues in other cities tell me that their experiences are exactly similar to mine. But perhaps the best indication that this misuse of the method is not confined to one part of the country is the fact that the American Heart Association has received letters from leaders in the cardiovascular field in the East, the South, the Midwest and the far West, asking if some board cannot be established for the sole purpose of certifying those physicians who are competent to interpret electrocardiograms. And why? Because they have been appalled at learning how many wholly untrained and incompetent physicians have purchased electrocardiographs and are using them daily in their offices, with serene confidence in their ability to distinguish between the important and the unimportant changes in the curves. In many cases, their erroneous diagnoses would be merely ridiculous if they did not so often lead to tragedy in the lives of their patients.

I believe one of the principal reasons why the electrocardiographic method is doing widespread harm today is that many physicians overemphasize its value and underestimate its limitations. They confidently expect it to accomplish much the same things that a surgeon expects of an exploratory laparotomy; that it will disclose the nature of the pathologic process, reveal its exact location and extent, and tell a great deal about the immediate treatment and

prognosis. They fail to realize that it is purely a laboratory procedure, comparable in many respects with a roentgenogram or a lenkocyte count. As such, the electroeardiogram is to be interpreted merely as one finding among many, and in the light of all the clinical evidence and other laboratory tests. With the exception of the arrhythmias and some cases of acute myocardial infarction, it is reprehensible to attempt an interpretation of the electrocardiogram without knowing the elinical findings and the clinical diagnosis.—*N. E. J. of Med.*

A MILITARY SURGEON'S PRAYER

God of Battle, grant that the wounded may swiftly arrive at their hospital haven, so that the safeguards of modern surgery may surround them, to the end that their pain is assuaged and their broken bodies are mended.

Grant me as a surgeon, gentle skill and intelligent foresight to bar the path to such sordid enemies as shock, hemorrhage and infection.

Give me plentifully the blood of their noncombatant fellow man, so that their vital fluid may be replaced and thus make all the donor people realize that they, too, have given their life's blood in a noble cause.

Give me the instruments of my calling so that my work may be swift and accurate; but provide me with resourceful ingenuity so that I may do without bounteous supplies.

Strengthen my hand, endow me with valiant energy to go on through day and night; and keep my heart and brain attuned to duty and great opportunity.

Let me never forget that a life or a limb is in my keeping and do not let my judgment falter.

Enable me to give renewed courage and hope to the living and comfort the dying.

Let me never forget that in the battles to be won, I, too, must play my part, to the glory of a great calling and as a follower of the Great Physician. Amen.

JOHN J. MOORHEAD, M. D.
in a communication to the New York Sun.
(Reprint from J. Med. Soc. N. J.)

NASAL ALLERGY

The discovery, in recent years, of nasal allergy has thrown much light on diseases of the accessory sinuses and has explained many of our failures in the past. It is estimated that about 25 per eent of the patients in ordinary rhinologic practice have in them some element of allergy, a fact we are just beginning to appreciate.

For years nasal allergy paraded under a long list of pseudonyms, hyperesthetic rhinitis, spasmodic rhinorrhea, rhinitis nervosa. We recognize them today as allergic rhinitis. One of the most frequent and baffling types of case in years gone by has been that of nasal polyposis, constantly recurring despite repeated operation. Today we realize that its cure depends, not on surgery, but on the discovery of the offending allergens. True, polypi may result from nasal infection, but such polypi are much more easily controlled by operation and have much less tendency to recur when the infection has been eradieated.

Allergy, of course, does not explain all nasal disease. Acute and chronic infection still take heavy toll of the aceessory sinuses and are still amenable, in most cases, to surgical treatment. But we now realize that an uncontrolled allergy will probably vitiate surgical treatment of the sinuses, treatment which should not be undertaken till the allergic factors have been eradicated so far as possible. Naturally, one would not hesitate to initiate surgieal treatment in the allergic patient, in cases of acute infection with intention, orbital abseess, or osteomyelitis. Minor procedures, such as removal of obstructing polypi or resection of deflected obstructing septae, may also be properly done with good result in allergic cases. Our knowledge of allergy has greatly clarified surgical indications but it has not rendered sinus surgery obsolete.

—*Minn. Med.*

CHICAGO SELECTED FOR 1942 CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

Because of the war, the thirty-second annual Clinical Congress of the Amerieau College of Surgeons will be held in Chicago October 19 to 23, instead of in Los Angeles as originally planned. Headquarters will be at the Stevens Hotel. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously. The programs of both meetings will be based chiefly on wartime activities as they affect surgeons and hospital personnel in military and civilian service.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The general oral and pathological examinations (Part II) for all candidates (Groups A and B) will be conducted at Atlantic City, N. J., by the entire Board, prior to the opening of the annual meeting of the American Medical Association in Atlantic City, on June 8, 1942.

SULFADIAZINE ABSTRACT BOOKLET A CONVENIENCE TO PHYSICIANS

With the usefulness of Sulfadiazine growing rapidly, it was felt that a booklet containing abstracts of significant recent articles would be of real convenience to physicians and others working with this important Sulfa drug. Accordingly, Lederle Laboratories, Inc, New York, N. Y. have recently made available a 64-page booklet, "Abstracts Selected from Published Articles on Sulfadiazine."

In order to compress significant material into a booklet of this size, every article on the subject appearing up to December 1, 1941, has been examined. Articles which contained only minor evidence as well as those which overlapped or reworked prior authorities have been eliminated. At the same time, no attempt was made to select the most favorable articles. The result is

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Iron	15 mg.	0.2 to 0.5 mg.	1/30	3%
Vitamin A	3090 to 6000 I. U.	900 to 1800 I. U.	1/3	33%
Thiamin	250 to 300 I. U.	60 I. U. (raw milk)	1/5	20%
Ascorbic acid	500 I. U.	520 I. U. raw milk)	1	100%
Vitamin D	400 I. U. (for children)	40 I. U. (summer milk)	1/10	10%
Nicotinic acid	10 to 15 mg.	4 to 12 mg., roughly	1/3	33%
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—Med. Times.

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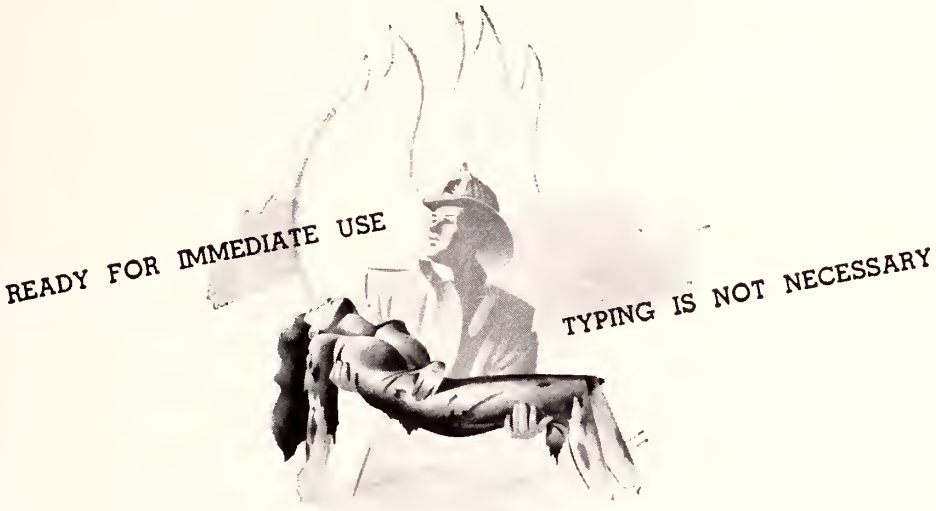

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a terse, but authoritative review of material on Sulfadiazine, arranged topically for convenient reference. In most instances selected articles have been condensed to one page or less. In every case, bibliographies are supplied for those wishing to study the articles in full. This new booklet is available through Lederle representatives, or on request from Lederle Laboratories, Inc., 30 Rockefeller Plaza, New York, N. Y.

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

LEADERS OF MEDICINE. Biographical Sketches of Outstanding American and European Physicians, by Soloman R. Kagan, M. D.: the Medico-Historical Press, Boston, Massachusetts, 1941. $3.00.

This volume of 176 pages contains 12 essays upon the lives of as many great physicians, several illustrations and an index.

Who is there of the modern physicians who does not wish to know the essential facts of such men as Henle, Virchow, Mitchell, Allbutt, Solis-Cohen, J. S. Billings, Cohnheim, Weigert, Osler, Welch and Ehrlich, and has time only for succint reports?

This volume by that well recognized writer Kagan gives the reader all and more, about each of the above well-remembered physicians, than he can usually read at one sitting, and certainly a lot more than he will usually remember. The story of the life of the great Osler is in itself worth the price of the book.

The publishers have certainly taken a delight in the appearance of the volume.—*O. H. Brown*

THE ART AND SCIENCE OF NUTRITION, by Estele E. Hawley, Ph. D., and Grace Carden, B. S. The University of Rochester, School of Medicine and Dentistry, Rochester, N. Y. The C. V. Mosby Co., St. Louis, Mo.

This is an extremely timely volume, written for the nurse and for the dietician who wishes to have some fundamental knowledge of nutrition, as well as to have adequate instruction and reference in the field of practical dietetics.

The book is divided into five parts. Part one covers the field of nutrition and metabolism, considering normal digestion and metabolic activities and the classification of food substances. There is a chapter on water balance and the essentials of an adequate diet, with some consideration on planning a general normal diet.

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* *Irritation of the nose and throat due to smoking.*

** *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154.*

Part two discusses the food requirements under special conditions, considering such circumstances as pregnancy, lactation, disease, and diet in old age.

Part three gives a survey of the usefulness of diet as a therapeutic means in such conditions as diabetes, gout, Addison's disease, celiac disease, and so forth.

Part four is a highly practical and valuable reference section for the dietician on the choice, preparation, and serving of food. This section is in meticulous detail, even considering such items as the washing of dishes, care of the sink and the refrigerator.

Part five consists of a list of references from which more extensive information may be gained, and part six is an appendix devoted mainly to tabular information concerning vitamin contents, and so on.

The volume contains 140 illustrations which are chosen with care to illustrate points in the text. It contains a wealth of important material, is readable, and should serve either as a textbook or as a reference book, both for class work and for workers in this field. —*L. O. Dutton.*

CANCER OF THE FACE AND MOUTH, by Vilray P. Blair, M. D.; Sherwood Moore, M. D., and Louis T. Byers, M. D. St. Louis. The C. V. Mosby Co. Price $10.00.

This volume is a record of the experiences and opinions the authors have gained from the care of 1500 cases of epithelial malignancy occurring in or about the face or mouth. Throughout, emphasis is laid on the surgical treatment of these patients, but their care and management is discussed in considerable detail, both from the standpoint of general care as well as specific treatment of the lesion itself.

Cancer of different locations, such as the ears, nose, tongue and buccal mucosa are considered in separate chapters and about each of these there is much general discussion as well as specific case histories and illustrations.

There is a chapter on anaesthesia, and a chapter on radiation therapy. The authors make a plea for the complete use of all available aids in the treatment of cancer of the face and mouth, but decidedly favor surgical removal as the treatment of choice. They feel that radiation therapy is most useful as an aid to surgical treatment, or as treatment of the truly inoperable case. They also make a plea for cooperation between the

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Superintendent

surgeon and the radiotherapist and ask that each of these recognize the value of the other.

Three hundred and seventy pages of this readable volume are devoted to the discussions just enumerated, while the remainder of the six hundred pages is devoted to operative technique. This is presented in a series of line drawings which are explained by concise but adequate legends which present surgical technique with great clarity.

The author states that one of the fundamental purposes of this volume is to supply adequate data and information upon which practitioners, who first see these cases, may predicate careful and reliable information as to what may be done. They state that a great percentage of failure in the treatment of cancer is due to inadequate first advice, and they make a plea that the profession make an attempt to overcome this fault so that adequate treatment may be furnished the cancer patient at the earliest possible moment. The volume is very readable, is profusely illustrated, and should certainly be in the library of all who offer advice for treatment to such patients. —*L. O. Dutton.*

EVERYDAY NURSING FOR THE EVERYDAY HOME, by Elinor E. Norlin, R. N., teacher of hygiene and home nursing, Julia Richman High School, New York City; and Eesie M Donaldson, R. N., teacher of hygiene and home nursing, Bay Ridge High School, Brooklyn, N. Y. Illustrations by Mary Simas. 306 pages. The Macmillan Company, New York: 1942. $2.50.

The impression is gained from a study of this book that not only are the authors women of wide experience and acumen in the field in which they write but that they have had advice and criticism from greater authorities than what they are.

The contents of the volume are divided into two parts: nursing to keep well and nursing when illness comes. The first part rightfully deals largely with the child, and hence is or may be of invaluable aid to the young mother; the second part deals with all sorts of methods and modalities of the home, such as heat and cold, the types of beds, enemas, nutrition, keeping of notes, etc.

The illustrations, numerous, are simple line drawings and should prove helpful. Chapter 13 treats of special nursing procedures when a disease is communicable, and chapter 14 of what to do in emergencies arising in the home. The program of what to do means only until the physician comes—he is to be called promptly.

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In the last pages are three important divisions: suggested readings, a glossary and an index. All may be of great help.

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—O. H. Brown.

FUNCTIONAL PATHOLOGY, by Leopold Lichtwitz, M. D., New York; Chief, Medical Division, Montefiore Hospital; Clinical Professor of Medicine, Columbia University. 567 pages; 157 illustrations. Cloth $8.75. Grune & Stratton, Inc., New York.

Functional pathology is presented by the author as the science which analyses the mechanism of symptoms and signs of disease. As suggested by this definition, this book deals more with analysis of the clinical picture than it does with structural pathology. Repeatedly discussions emphasize the relation in function of the various organs and systems in cause or effect of disease. The regulatory action of the central nervous system is stressed, as are the physiology and pathology of the endocrine glands. In explanation of clinical disorders without adequate laboratory findings the author occasionally differs with widely accepted viewpoint, but his reasoning is based on thirty years' study and observation. Many of his own case studies are offered, with illustrations where possible. This book should lead to discussion wherever it is read.

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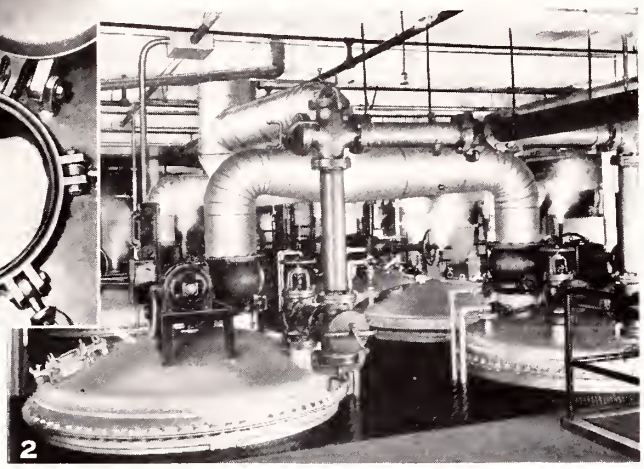

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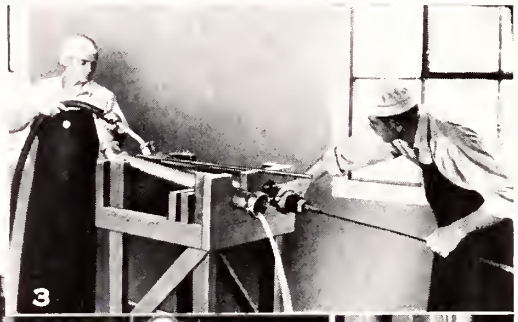

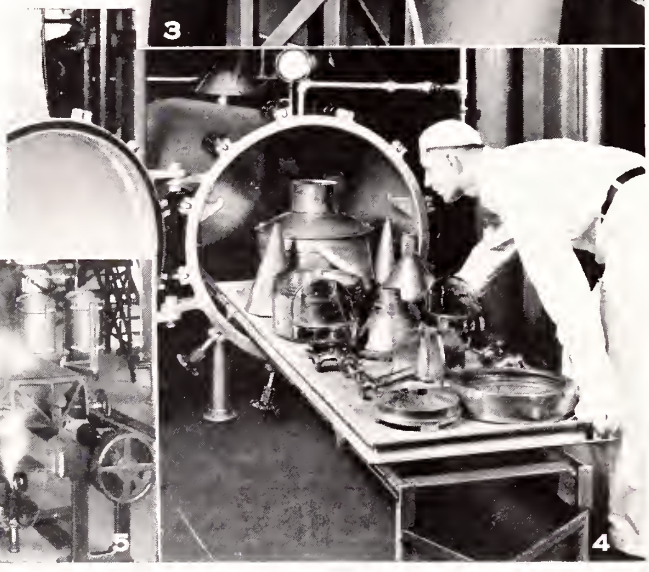

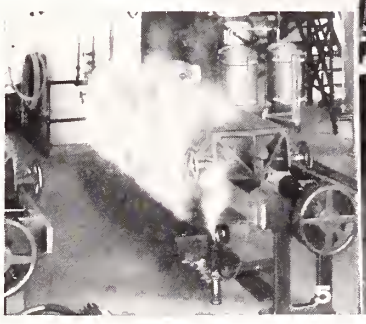

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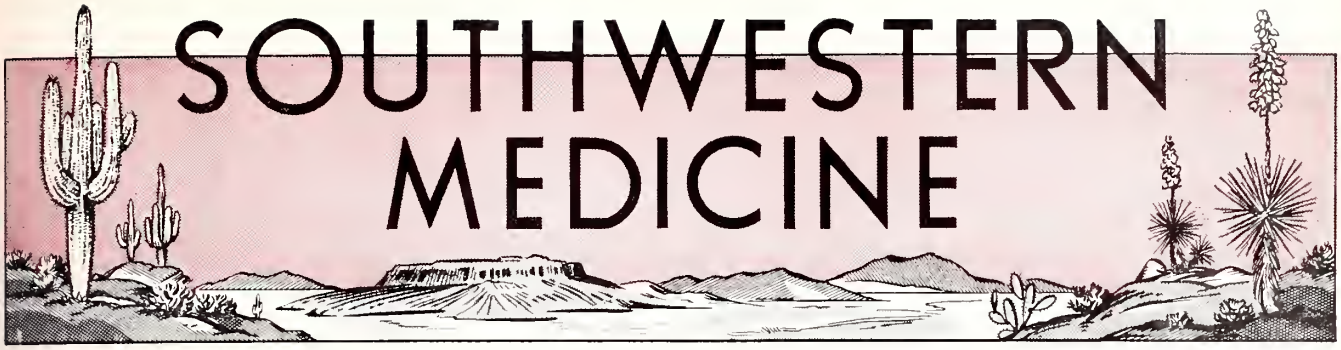

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THE N.Y. ACADEMY OF MEDICINE
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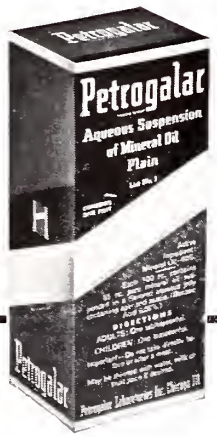

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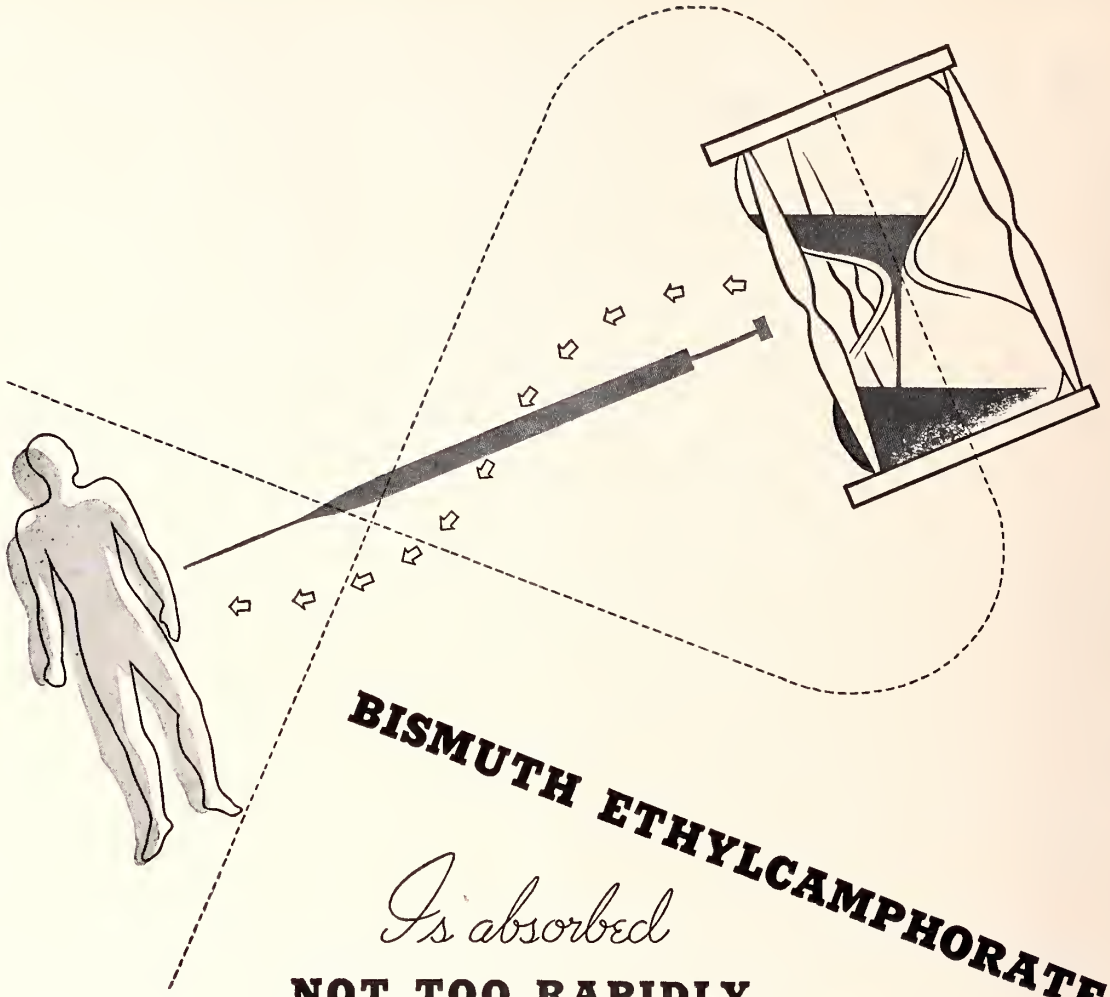

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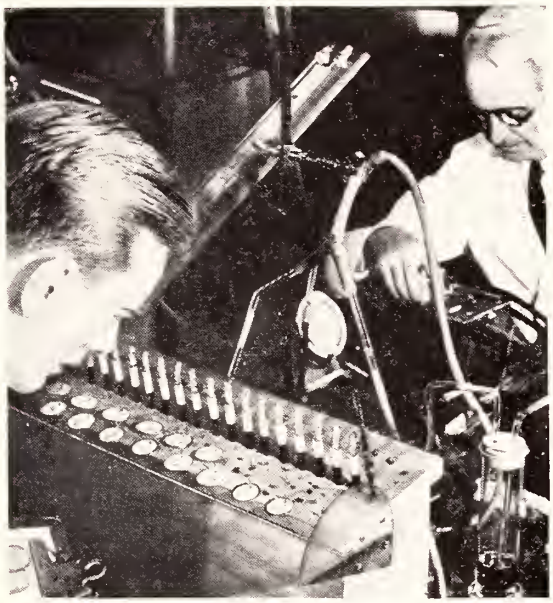

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* J. A. M. A., 93:1110—October 12, 1929
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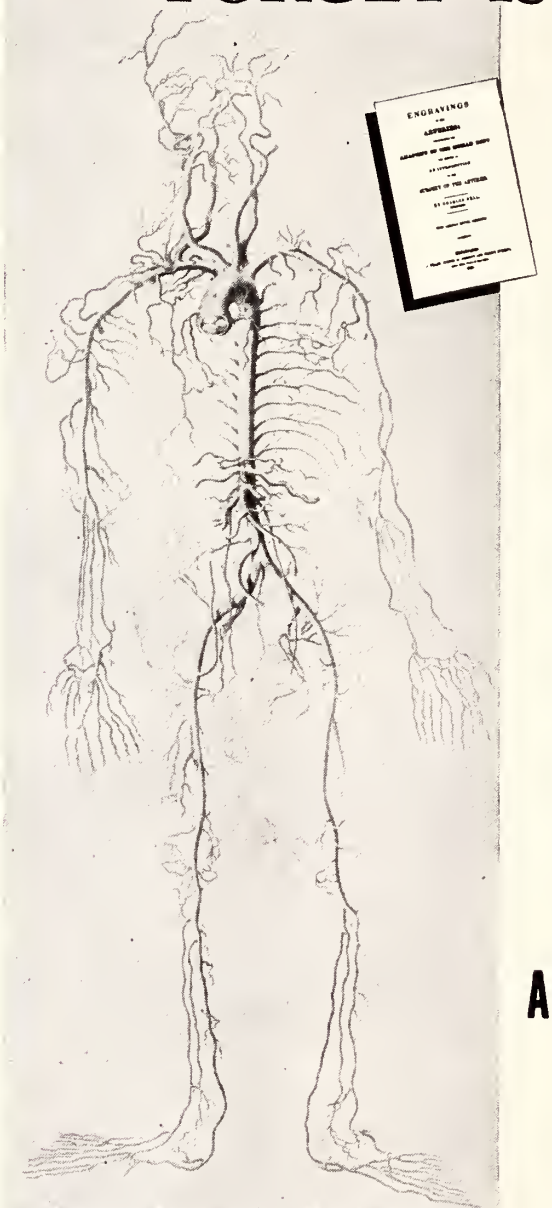

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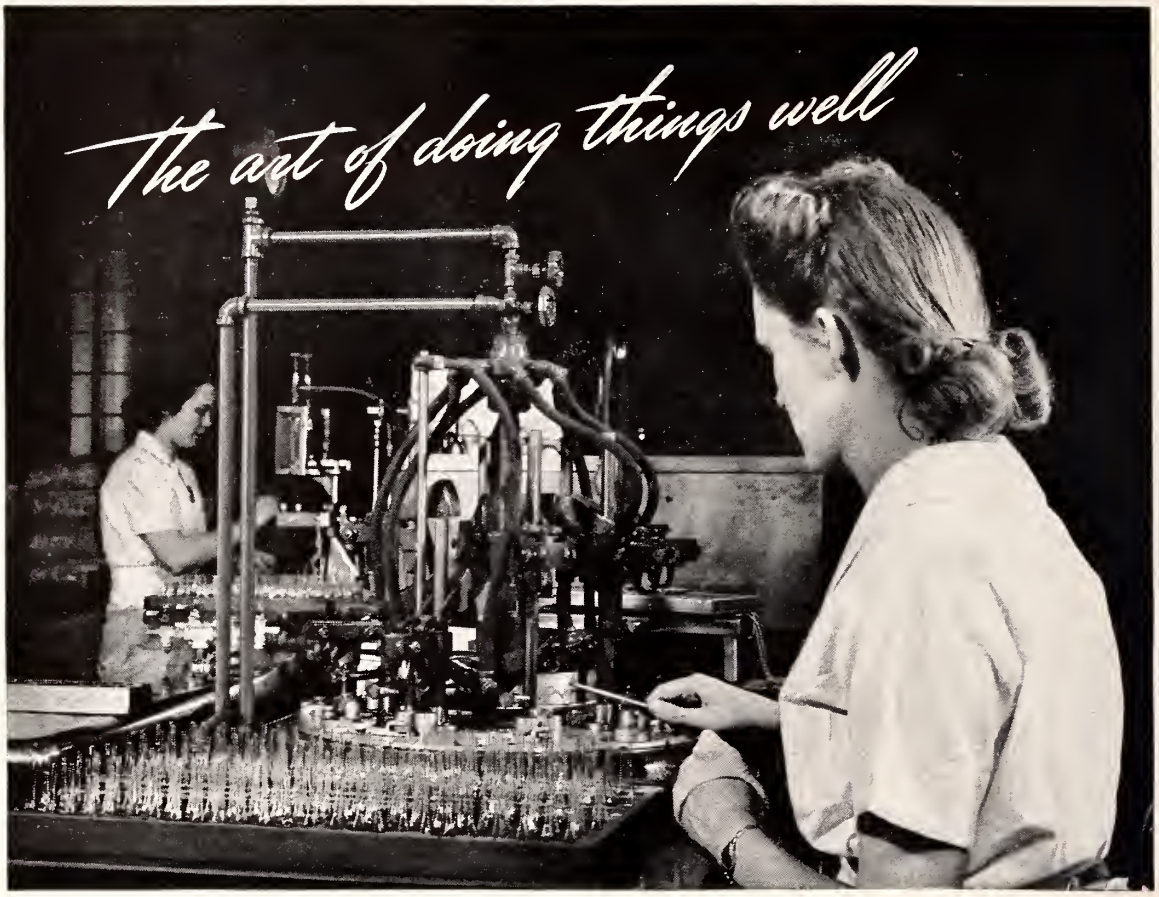

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SANTA FE SESSION

Elsewhere in this issue is printed the program of this war year meeting of the New Mexico Medical Society. So many of New Mexico's doctors are in service with the Army or Navy that it behooves those remaining at home to keep themselves professionally fit to carry the extra load imposed upon them. There is no better way to do this than attendance at one's state meetings. A splendid array of teachers will appear at this meeting. They deserve a large audience—it should be pleasurable to all to join them at beautiful Santa Fe.

Better make reservations early.

PEACE-TIME HERO—A FABLE FOR 1942

Once upon a time, in the beautiful United States of America, there was a nice young doctor named Clancy. He had worked hard, being of a poor family, to become a specialist and acquire a fine home in an expensive section of the city. He met a lovely brown-eyed girl and, due to his hard-won prominence, her family allowed him to marry her. In the course of time, they had a beautiful child. Now everyone would exclaim "What a typical American family" and wag their heads with pleasure that a poor boy could do so well for himself in the greatest of all lands, the United States of America.

Doctor Clancy recognized his debt to his country, too—oh, yes, so he gave a little money each year to the girls from his wife's and mother-in-law's clubs to help them support their favorite charities. And, when, because of their good works, his women-folk's pictures were printed in the society pages of the newspapers so that all might be made aware of their great-hearted charities, the doctor rejoiced, and was proud in his heart to overflowing.

One night at a meeting of his medical society Clancy heard a disturbing thing. It seemed that the Army of his Country wanted young doctors for what they called reserve service, and that it was most honorable to offer one's talents and receive a diploma that conferred the title of lieutenant or captain on one. There would be some writing to do, and perhaps a two-weeks' paid vacation every year or so, where one would wear a pretty uniform, and in a very short time there would come another diploma that made one a major, or a colonel. The silver bars that a captain wore on his shoulders were very shiny, but gosh, those oak leaves and tough looking eagles that majors and colonels could sport were so much more grand. Of course, before one could get a diploma making him a lieutenant or a captain, he must go to a strange place in the post office building and be examined and show those men there in brown uniforms that there was nothing wrong with him like bad feet or weak eyes or jumpy heart. But Doctor Clancy had always been of good health. He had lived a frugal life in his boyhood, because his Daddy could not buy him rich foods and sacks of candy. It was only lately that he had found exciting the bubbles in the wine glass and intriguing the saltiness of little black fish eggs—only since he had prospered in the land of the United States that had protected him, educated him, and made his little family safe in the night. So there wasn't anything wrong with him—there hadn't been time for anything to go wrong yet—and he got his diploma and framed it and hung it in his office for all to see.

As Doctor Clancy said later, that annual two-weeks paid vacation on what was called active duty was "pretty soft." What great fun it was to put on that trim garb with the silver bars on the shoulders and the shiny leather belt around

the waist, and parade before the mirrors in his lovely new house in an "exclusive" part of the city.

How his baby clapped its hands and crowed with pleasure, and how his pretty wife's eyes shone with pride at the figure her hero made, so straight and so male-like as a defender of his Country, the Great United States of America. How excited were the girls in the club over the "tree-e-e-mendjus" sacrifice Hero Clancy was making. Truly, the greatest of all countries was safe and secure, with heroes behind every bush to repel the barbarian enemy.

Then, one bright morning, the radio told of the gathering of clouds over a land called Europe. The huge armies there were taking up their fighting where they left off nearly a quarter-century before. Folks began to say to Hero Clancy, "I suppose you'll be called to duty any day now," and smile in the secure knowledge that fellows like Clancy were what made their United States great and free and strong. How Hero Clancy would swell with patriotism and pride when he saw that his people depended on him and had faith in him their defender. How excited were the girls in his wife's club over the silently splendid way his wife was taking the whole affair—so noble in her gift to the land they loved so well. True enough, Hero Clancy had not actually been called to duty yet, but then he might—a shiveringly thrilling prospect.

One day a letter came. It seemed that Hero Clancy had not written enough in his correspondence courses. And unless he did a lot of writing he might be deprived of his diploma, and that space on his office wall be made bare. Thinking that over, he bought a noon paper and saw a story:

"Washington, D. C.—The Army announced today that it expects to call Reserve Officers to active duty shortly."

Late that afternoon, deciding that he no longer cared to write his Correspondence lessons, and that a gold oak leaf on the shoulder wasn't everything, after all, he sent in a resignation from his status of defender of his country. No, he wasn't afraid of being called, you understand. It was just that lately, since the war began, his poor feet had been hurting, and he had indigestion, and he had thought some of seeing if he needed glasses. You might even say that he wasn't afraid—it was just that he had a big new house he couldn't pay for on a captain's salary.

Now, sure enough, in a very short time other doctors were one by one leaving Hero Clancy's city—going to the Army and the Navy of their Country. And Doctor Clancy thought they were saps, and said so. It came to pass that the United States was attacked one foul morning and hosts of men arose and joined the armed forces to repel the enemy. But not Doctor Clancy. His hero days were over. And when well meaning folks asked our friend when he was going to jump in the old uniform and lend his aid, he straight-faced answered "The Army discharged me; they couldn't use me, I guess." So he stayed home, in that very house made secure and safe by the efforts and fighting of his fellow-citizens.

And he bought a Defense Bond, and felt good, because he had done his bit. Other men, not half so able physically as he, went to the stormy Atlantic or cold Iceland, or joined MacArthur's immortals, or worked in training stations and hospitals on the mainland. These other chaps did not think much of being heroes—they were simply too busy.

And this then is the story of Doctor Clancy—a peacetime hero.

Do you have a Doctor Clancy in your home town?

Recent Advances in Thoracic Surgery

JAMES M. OVENS, M. D.
Phoenix, Arizona

THORACIC surgery in itself may be stated to be a recent advance in surgery. Its beginning as well as the beginning of accurate diagnosis of all intra-thoracic disease was in 1895. On November 8th at the Institute of Physics at the University of Wurzburg in Bavaria[1], Prof. Wilhelm Konrad Roentgen first demonstrated his rays originating from a Crooke's tube stimulated by sparks from an induction coil. Thus, with the discovery of X-rays, and the climaxing of this great physicist's series of experiments with Cathode rays, was born this accurate..

Read before the Southwest Indian Service Medical and Nurses Societies, Phoenix, Arizona, November 12, 1941.

method of diagnosis so vitally necessary for intelligent comprehension and treatment of subcostal conditions. Progress was slow at the turn of the century, however, and it was not until the more recent knowledge of the basic sciences that the pace in advancing thoracic surgery was quickened. During the last decade great strides have been taken and it is with these newer advancements that this summary deals.

DIAGNOSIS

Fundamental in importance are the more recent advances in the diagnosis of intra-thoracic conditions. Bronchoscopy is an ever improving and necessary method of diagnosis of intratracheal and intra-bronchial conditions, for it is only with this method that conditions of these structures can be directly seen and biopsys taken. Thoracascopy, after diagnostic pneumothorax and Roentgenograms is being used more and more for visualization of intra-pleural pathological conditions, or for visualization of secondary conditions in this area, due to pathology elsewhere. Bronchography, by any of the techniques desired, is absolutely necessary for differential diagnosis of many lesions of the lungs. Radiographs, in correct positions, six foot stereographs, light and heavy exposures, and the most recent development, laminographs or tomographs[2] are of the utmost importance in localization of lesions such as abscesses, especially where the pulmonary fields are obscured by some other factor, such as an effusion, etc. Roentgen Kymography may be an aid in diagnosis of aneurysms and allied conditions. Punch biopsy is a new procedure in thoracic surgery, having previously been used for prostatic and liver biopsy. Its diagnostic value of aiding in the discovery of the fundamental pathological condition present.

Infra-red photography, though being of no singular importance, may be the final link in the chain of diagnostic procedures necessary for the diagnosis of sub-sternal goiter or other conditions blocking the thoracic inlet. Arteriograms, in diagnosis of vascular conditions of abnormality is now of importance with the use of accurately timed radiographs and fluoroscopy. Pneumoperitoneum is now a necessity in the solving of many diaphragmatic puzzles. The examination of the sputum for malignant cells has been used for diagnosis and is a valuable aid in a small percent of cases. X-ray therapy is a valuable aid in differentiating Hodgkin's disease and sarcomata of the mediastinum which are radiosensitive for a time, from the carcinomata which are unaffected by the Roentgen rays.

BASIC SCIENCES

PHYSIOLOGY. Among the basic sciences the recent advances in pulmonary physiology, the more exact studies of the respiratory exchanges of the air, vital capacity, and intrapleural pressures have been very important. The better understanding of mediastinal flutter, fixed mediastinum and paradoxical respiration, has led the path for better anesthesia and treatment.

PATHOLOGY. The progress in the pathological conditions involving the lungs has progressed markedly. The description of the superior pulmonary sulcus tumor by Pencost in 1932[3] and Stein's description in 1938[4] of the apical lung tumor are new milestones. The description of the mixed tumors of the lungs by Womack and Graham[5] has been a new contribution to the field.

Of late the understanding of the successive changes of emphysema-atelectons-suppuration occurring distal to the bronchial neoplasm has been widely publicized[6] and has become a fundamental pathological process well understood by all interested in thoracic pathology.

ANESTHESIA

Although cyclopropane was first prepared by August von Freund in 1882[7], it was not until 1930 that Waters, Neff and Rovenstein administered it clinically at the University of Wisconsin. It is the most inflammable and explosive of all the gasses used in anesthesia, but despite this, it is the most desirable general anesthesia in thoracic surgery and is now used much more than any other inhalation[8] anesthetic. With it a thoracic operation is no longer a race against anoxia. When the cautery or coagulator are being used other means are employed.

Colonic anesthesia with calculated doses of tribromethanol is an excellent basal anesthetic, and intra-venous anesthetics such as evipal and pentothal sodium are being used more and more daily, particularly where the cautery or coagulator is to be used. Both are better when used as basal anesthetics with procain infiltration or nerve block than when used alone.

Spinal anesthesia for thoracic work is advancing, especially now that anesthesia is a specialized branch of medical practice and more

time is being devoted to accurate spinal blocks.

Whether inhalation, rectal or intra-venous anesthesia is used the problem of maintaining an open airway is of utmost importance. Whether it be with endotracheal intubation, with or without a balloon, or without intubation, the value of suction in wet cases must be kept in mind.

Positive pressure anesthesia, especially in intra-pleural operations is a valuable aid, but not so necessary with local or spinal anesthesia as with inhalation anesthetics.

CONGENITAL LESIONS

Among the congenital intra-thoracic lesions that have recently been successfully treated surgically and for which the only cure is surgery are the congenital stenosis of the larynx, trachea and bronchii. These lesions are treated with the bronchoscope. Recently Gross[16] has reported a successful case of ligation of a patent ductus arteriosis in a girl 7½ years old with apparently a complete cure of the altered circulation.

LUNG ABSCESS

Lung abscesses, particularly the more virulent, putrid type still remain a surgical nemesis. Regardless of the alleged efficacy of Guiacol and other products in the treatment of these conditions, the great curative measure remains as surgery. Regardless of whether it originates embolically or by aspiration, the treatment is the same. Early abscesses, especially the central ones, are often cured by repeated bronchoscopic drainage, while after a wall has been formed open drainage with the knife or cautery after thoracotomy is the method of choice. One must be sure the pleural layers are adherent, however. I have lately used the Monaldi continuous negative pressure method with success in suppurative non-tubercular abscess of the lung.

BRONCHIECTASIS

In bronchiectatic lesions of the lungs we now have a condition that is as surgical a disease as is acute appendicitis. No longer need the bronchiectatic patient spend a lifetime of postural drainage, foul breath and continuous oral, intra-venous and inhalation medication. At present the curative treatment for bronchiectasis is lobectomy, lobectomys or pneumonectomy, and the general practitioner or internist should feel it his duty to see that his patient with this condition has worthy surgical consultation before any other form of treatment is considered[10]. Naturally the areas affected should be mapped out by bronchography and the plan of surgical attack then considered. Medical methods have been tried for years—have failed for years and there is now a surgical cure for a great percentage of people with this dreaded disease.

EMPYEMA

ACUTE. The trend in acute non-tubercular empyema is now toward rib resection and drainage by means of a closed system, rather than with the open method or the Mazingo manner. At the optimum time the minor thoracotomy is performed and the airtight water seal drainage is instituted with the pulmonary fields being re-expanded by bottle blowing exercises. Should this method fail to re-expand the lung, negative pleural pressure is then instituted by means of suction applied to the airtight system. Pneumothorax, and too early drainage should be avoided[11]. In infants under two years of age, continuous aspiration is the method of choice rather than rib resection. The presence of bronchopleural fistula alters the course of treatment, but slightly. In these patients the institution of negative intra-pleural pressure is unnecessary, for in time the pleural space tends to obliterate itself.

CHRONIC. In chronic empyema the cavity is to be closed by any means. Lacework or cruciate incisions of the thickened visceral pleura followed by blowing exercises may suffice in some cases. In contrast to this method, which brings the lung to the chest wall is the Schede operation which obliterates the cavity by bringing the de-ribbed chest wall to the pleura.

Also being used extensively in obliterating chronic empyema cavities is the partial selective thorocoplasty[12] with pedicle muscle grafting, the pectoralis major, latissimus dorsi, and the trapezius being used. This method produces practically no deformity.

TUBERCULOSIS

In the treatment of pulmonary tuberculosis the most recent and fruitful advances in surgical phthisology are:

1. The Monaldi procedure
2. The extrapleural pneumothorax
3. More selective thoracoplasty
4. Lobectomy or pneumonectomy

1. The Monaldi continuous suction has proven itself to be of value in the collapse of cavities, particularly those with a positive intra-cavity

pressure. The procedure can be used on suppurative lesions as lung abscesses also, especially when situated near the lung periphery and with an adherent pleura. Soft walled, poorly draining cavities are most responsive.

The cavity is first accurately localized with whatever films are deemed necessary. It is then entered with a tracer and aspirated. The rubber catheter is inserted after removal of the obturator. The catheter is maintained in position by means of black silk, safety pins or adhesive. The catheter position is then checked with the X-ray and if in the proper position the negative pressure instituted until the cavity is obliterated or markedly reduced in size. Reduction in size of cavities may be noted in from a few days to several weeks.

2. Extra-pleural pneumothorax is being used more and more daily and many believe it should be performed wherever intra-pleural pneumothorax is tried and fails. The operation is not difficult. The extra-pleural space is approached via the anterior or the posterior route. I prefer the posterior route through the 4th rib bed. The line of clevage between the endothoracic fascia and the visceral pleura is easily found and the apex collapsed[13]. The manual dissection is then carried down as far as is deemed necessary. The space is filled with saline after hematosis is secured and the wound then closed in airtight fashion. In twenty-four to thirty-six hours saline aspiration and air introduction is begun. Positive pressure is maintained at approximately twenty-five centimeters water pressure to prevent the lung from re-expanding. The collapse is maintained as long as the pathology requires.

3. The old Sauerbruch thoracoplasty is now antiquated. Instead of removing small segments of many ribs, now localized areas are being entirely removed of their bony framework by the extra-pleural technique in one or more stages. The pleural cavity is never entered and the mortality rate is very low.

4. Lung resections for tuberculosis were carried out as early as 1881[12]. With the development of other methods of collapse therapy resection was then dropped. Lately pneumonectomy and lobectomy are being used for other conditions and have also returned again to the armamentarium of the phthisologist. Resections have been carried out for large areas of caseation and liquefaction, particularly with a lesion such as stenosis, causing the draining bronchus to be occluded. It has also been recommended for large cavities that cannot be collapsed by chest wall surgery.

Pneumoperitoneum is being used by many very good men while others doubt its efficacy. None, however, can deny that a marked collapse of pulmonary tissue takes place with this method as is indicated by the reduction in vital capacity.

Phrenic operations of all sorts as well as operations on the scalenii muscles are not being used as much as formerly.

COSMETIC RESULTS

The treatment of inflammatory conditions of the thorax necessitating rib resections of varying degrees and residual pleural adhesions and thickening formerly resolved itself to saving the patients life. Now it is the duty of the thoracic surgeon to not merely save life, but to leave the patient with as little functional and cosmetic handicap as possible. After any operation on the ribs, pleura or lungs, the patient should be placed in such a position that the natural deformity which tends to result is compensated for by wedges, frames, casts, or whatever mechanical means best suited, placed correctly, to prevent the occurrence of the anticipated deformity. Bisgard[14] has differentiated the pleurogenic and the thoracoplastogenic deformities excellently and has written on their pathogenesis and treatment in commendable fashion.

NEOPLASMS

Pulmonary neoplasms are now joining the large family of successfully treated intra-thoracic conditions. Benign lesions of the bronchial tree are successfully removed with the bronchoscope.

Lobectomy has been superceded by the present pneumonectomy for malignant lesions of the bronchii and lung periphery. Metastasis takes place early and only a small percentage of these lesions are in the operable stage when the diagnosis is reached. Only between 10% and 25% of these cases are classified as operable and can be given the benefit of surgery. Although pneumonectomy is the classical operation for malignancy of the lung a small percentage of localized tumors with no spread are suitable for lobectomy.

THORACOSCOPY

Thoracoscopy has shared in the recent advances of this new field of surgery. Thoraco-

scopic diagnosis and treatment are both improving and among the adhesions that are now being severed are the large vascular adhesions which are clamped via the thorascope and tied before their severance. This is still in the experimental stage, however.

HEART

Nor has the surgery of the heart been lagging in this progressive field. Suturing of cardiac wounds has improved. Pericardiolysis is still being performed and in a method that has improved with time. Pericardial tamponade and the points of diagnosis in this condition are all better understood.

Recently Beck [19] has reported his operation for increasing the blood supply to the heart muscle in patients with coronary artery sclerosis and angina pectoris. He makes a transverse incision on the left side. The pectoralis major is divided laterally. The 5th and 6th costal cartilages are excised, the pectoralis major is then split in the axis of its fibers and the upper flaps brought to the anterior surface of the heart, after the pericardium and epicardium are removed. The inferior flap he wraps around the heart to the posterior surface. The pericardium is left open and the soft tissues closed.

O'Shaughnessey[20] has developed another method in which he brings the omentum up through the diaphragm and pericardium to the heart. Beck states he, too, has used this method experimentally[19].

Mautz[21] has done much work on the reduction of the cardiac irritability by the application of drugs topographically. He has also found quinidine sulphate valuable when given per os. These drugs correctly used are valuable in preventing such conditions as auricular or ventricular fibrillation, tachycardia, etc., from arising when one is already busily engaged in some form of surgery on the heart, which is difficult enough, without these added complications.

AUTONOMIC NERVOUS SYSTEM

Not only are the lungs and thoracic cage taking place in the progressive march, but the surgery of the heart and the intra-thoracic autonomic nervous system is taking large steps forward.

No longer need the cardiac patient suffer the agonizing pangs of "angina pectoris" for with the present knowledge of the cardiac innervation the patient with anginal pains has merely not seen a progressive surgeon or internist. For the patients who are poor surgical risks the sympathetic ganglia from the first to the 4th or 5th thoracic are now injected alcohol on one or both sides, as is determined by the severity and radiation of the pain. This relieves the anginal pain, but the patient is still gripped with a tight pre-cordial squeezing sensation that serves as the buffered warning of over exertion in place of the anginal pain. This relief of pain lasts for one to six months.

For the patient who is a better surgical risk a more perfect and permanent cure of pain is offered in the resection of the stellate and upper four thoracic ganglia, or posterior rhizotomy of the first to the 4th or 5th spinal nerves. These methods are much more satisfactory, more permanent with less chance of post operative pleural pain or neuritis.

Technical difficulties may frequently be met in the alcoholic injections.

The patient with peripheral vascular disease of the spastic type can now be greatly aided by the thoracic surgeon, for after primary injection of the ganglia with procain solution to test the results to be obtained, the cervico-dorsal ganglionectomy involving the stellate and upper 4th ganglia can be performed to furnish the upper extremities with much relief. Of course the lumbar sympathectomy must be performed for lower extremity relief.

The use of the thoracic splanchnicectomy in hypertensive therapy is not new. However, recently more widespread operative procedures have been advocated such as the removal through a double posterior approach of the stellate and all thoracic ganglia as well as both aplanchnics and the celiac ganglion and, if possible, the first or second lumbar ganglion. This is followed by the lumbar incision for removal of the remaining lumbar ganglia.

CONCLUSION

In this short and sketchy summary we see that practically every intra-thoracic disease is in some form best treated by surgery. The field of thoracic surgery is ever broadening and just as bronchiectasis was yesterday a medical and is today a surgical disease, so today's medical diseases may be tomorrow's surgical diseases and it is the duty of the general practitioner and the internist, as well as the surgeon, to keep moving forward with this rapidly pro-

gressing field in order that he may not miss a single opportunity to aid the patient that may be bearing one of these diseases.

Lois Grunow Memorial Clinic.

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Pathological Physiology of the Liver

(I. Regulation of the Blood)

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THE liver is the largest, the most versatile and the most hermit-like organ in the body. It has a very large factor of safety, or functional reserve. It is possible to remove three-fourths of the liver of an experimental animal without serious results to the animal as a whole. This is an important fact in the evaluation of the results of tests of liver function for clinical purposes.

After partial removal of the liver and after selective destruction of hepatic cells, leaving a framework of the stroma intact, the power of regeneration of the liver is so great it will regenerate about 90 per cent of the lost liver tissue within a few weeks. Thus, not only may the liver maintain its normal functional capacity in spite of extensive damage to its substance, but it will rapidly regain much of its original functional reserve. Evidence of the extent of injury or destruction of liver tissue that may occur without detectable reduction of hepatic function, as measured by the usual functional tests, is frequently seen at autopsies when the liver is reduced to less than one-half its normal size and, on microscopic examination is found to have lost a much larger proportion of its parenchyma. Furthermore, evidence of the powers of regeneration is often observed in patients who have died years after recovery from such diseases as acute yellow atrophy in which massive destruction of liver tissue is known to occur. In the process of regeneration the original structural pattern of the liver may be completely restored as after poisoning with chloroform. In this condition the hepatic cells are selectively destroyed leaving the framework of the stroma intact to guide the process of regeneration. On the other hand, in cirrhosis of the liver and in the healing of acute yellow atrophy, regeneration does not result in restoration of the original structural pattern. The newly regenerated liver cells are not arranged as cords radiating outward from a central vein but as irregular cords and sinusoids separated into irregular masses by bands of connective tissue. This results in a disturbance of the circulation through the liver, in the production of a condition that has some of the characteristics of an Eck fistula in an experimental animal in which the portal vein has been anastomosed with the inferior vena cava. Eck fistula dogs can be actually poisoned by a high

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protein diet; and patients with cirrhosis of the liver do not do well on a diet rich in proteins.

CIRCULATION OF LIVER

The amount of blood which passes through the liver is enormous. It is greater than in any other organ except the lungs. The thyroid gland is said to have the richest blood supply of any organ in the body, since it receives 560 cc. of blood per 100 grams of gland substance per minute. The blood flow through the kidneys is about 200 cc. and through the liver about 150 cc. per 100 grams of tissue per minute. But when the size and weight of these organs are taken into consideration, the difference becomes marked. Thus the thyroid, which normally weighs about 40 grams, receives 224 cc. of blood per minute; the kidneys, weighing 300 grams, receive 600 cc. of blood per minute; while the normal liver, which weighs about 1500 grams, receives 2.25 liters of blood per minute or 37.5 per cent of all the blood in the body. The two lungs receive from 3 to 4.6 liters of blood per minute. The fact that such an enormous quantity of blood passes through the liver each minute is an indication of the great importance of this organ in the economy of the body. The circulation through the liver is rapid in spite of the fact that the pressure in the portal vein—the *vis a tergo* behind three-fourths of the blood traversing the liver—is low, being 8 to 12 mm. Hg in the dog and probably about the same in man.

The structural pattern of the circulation through the liver is an important factor in its functional activity. The liver, kidneys and lungs are concerned with producing alterations in the composition of the blood and each has a peculiar type of circulation and arrangement of its parenchyma adapted to accomplishing this end. The circulation in these organs differs quite markedly from that in other organs, such as the heart and brain, for example, in which the blood supply is only for the purpose of nourishment and removal of waste products. The cells of the liver are arranged in narrow cords which radiate outward from the central veins. This arrangement had some resemblance to that of the fascicular zone of the adrenal glands which are purely endocrine organs. Between the cords of liver cells is a rich network of wide sinusoidal capillaries. In this way each hepatic cell has two or more of its sides, or facets, 50 per cent or more of its surface, separated from a stream of blood by only a thin wall of endothelium and an exceedingly narrow tissue space. In this many-sided contact of hepatic cells with capillaries also the liver resembles a gland of internal secretion. The bile, which is the only external secretion of the liver, is discharged into very minute bile capillaries which lie between the hepatic cells, instead of into the lumen of a tubular or acinar gland. This intimate relation of the cells of the liver to capillaries facilitates the extraction from the blood of amino acids for deamination, sugar for storage as glycogen and toxic substances for detoxification; and their discharge into the blood of urea, glucose and other substances which the liver contributes to the blood for transportation to other cells of the body for their use or to other organs for excretion.

Not only is the quantity of blood passing through the liver important, its quality is also significant. About one-fourth of its blood supply reaches the liver by way of the hepatic artery; it is, therefore, arterial blood and is distributed mainly to the fibrous tissue of the capsule and the interlobular septa. Two-thirds to three-fourths of its blood is received through the portal vein after having passed through the capillaries of the stomach and intestines, and is therefore venous blood. Arterial blood is normally from 95 to 98 per cent saturated with oxygen; venous blood is about 70 per cent saturated. The mixed blood in the sinusoids of the liver is not more than 76.7 per cent saturated with oxygen. The blood circulating through this organ therefore contains less oxygen than does that of any other organ of the body. And yet, in spite of this continuous anoxia, the liver carries on its numerous functions effectively. It is adapted to a low oxygen tension and can perhaps work best under this condition. Just how this deficiency of oxygen and high content of carbon dioxide facilitates the various chemical processes that take place in the liver is not known. This particular questions does not appear to have been extensively studied and little that is definite can be said about it. However, two mechanisms for the formation of urea have been described in the liver, both of which require the presence of carbon dioxide as carbonic acid. One mechanism consists of the direct combination of the ammonia produced by the deamination of amino acids with carbonic acid to form ammonium carbonate. This substance

is then hydrolysed to ammonium carbamate and this to urea. By the other mechanism, either arginine is hydrolyzed directly into ornithine and urea by arginase, or ornithine combines with ammonia and carbonic acid to form arginine which is then split by the enzyme into ornithine and urea. Thus ornithine and arginine may act as intermediary substances in the formation of urea from ammonia liberated from the amino acids. Both mechanisms require carbonic acid. This is, therefore, an example of the manner in which low oxygen tension and high carbon dioxide content of the blood in the liver may be essential to its functional activity.

LIVER FUNCTIONS

The liver has a dozen or more separate and distinct functions. But in spite of its size and its busy activity, it is a most silent and dignified organ. When the heart is called upon to do more work it makes its complaints known by heavy and rapid pounding that may cause much distress. When a demand for more oxygen is made upon the lungs, as during vigorous exercise or because of disease of the heart, they comply but with groans and heaving respiration. The intestines and the kidneys make us acutely conscious of their functional activity. Even the brain produces a thought or calls up a memory once in a while. But the liver, with its great size and its numerous and varied activities, performs its duties with quiet dignity and patient industry. Even when insulted by serious injury it rarely retaliates by acute pain. The dull, indefinite pain which may accompany passive congestion or even abscess of the liver is probably due to the stretching of the capsule or to traction on its diaphragmatic attachments.

The functions of the liver may be grouped into those which are concerned in the regulation of the composition and volume of the blood, and those concerned with general metabolism.

During early embryonic life the liver is one of the chief sources of supply of blood cells. It surrenders this function only when the bone marrow has developed sufficiently to take over this essential activity. This usually occurs in the later months of fetal life. But hematopoiesis in the liver is often still active at birth and the sinusoids are crowded with immature blood cells. But the duties of the liver pertaining to the blood do not end with cessation of its function of hematopoiesis, because during the entire life of the individual it is one of the official cleansers of the circulating blood. Red blood cells are relatively short-lived. As senile erythrocytes totter through the sinusoids of the liver they are quietly removed from the blood stream by the Kupffer cells to be disposed of by a sort of euthanasia. While the liver is not the only organ that performs the last rites for aged and dying erythrocytes, and its parenchyma is not at all concerned with this process, it is an important factor in this function. Furthermore, no matter where the red cells are caught and destroyed by the littoral cells of the widely distributed reticuloendothelial system, a very considerable part, if not all, of the products of that destruction ultimately reach the liver for further disposal.

Of the products of disintegration of hemoglobin, liberated by the destruction of red blood cells, the liver stores for further use of the iron-containing hemosiderin, but excretes most of the iron-free bilirubin (hematoidin) as a waste product. The normal liver always contains a moderate amount of hemosiderin which is the scrap-iron of the body, useful in building new hemoglobin. The greater part of the iron absorbed from the intestines is stored in the liver. The quantity present is increased in pernicious anemia and in other types of anemia accompanied by increased destruction of red cells, such as that which is responsible for hemolytic jaundice. Even under conditions of very severe anemia the amount of this iron-containing pigment in the liver is never sufficiently great to interfere seriously with its function. On the other hand, in hemochromatosis, a disease due to a disturbance of iron metabolism, the amount of hemosiderin stored in the liver, spleen, pancreas, skin and other organs, reaches enormous proportions. This disease is not accompanied by anemia and the accumulation of hemosiderin is not the result of destruction of erythrocytes, but to a disturbance of the metabolism of iron. The amount of hemosiderin in the liver in this condition may exceed that which could be produced by the destruction of all the red cells in the body, that is, it exceeds the amount of hemosiderin that could be yielded by the entire mass of hemoglobin in the body. The huge amount of hemosiderin in the liver and pancreas acts as an irritant and causes cirrhosis of the liver with consequent disturb-

ance of hepatic function; it causes fibrosis of the islets of Langerhans in the pancreas and leads to diabetes. Since the pigment is also deposited in the skin giving it a brown color, when accompanied by hyperglycemia and glysosuria this is called bronzed diabetes. It may be remarked in passing that H. R. Fishback, working in our laboratory has devised a very simple test for the diagnosis of hemochromatosis. It consists of the intradermal injection of about 1 cubic millimeter of a very dilute solution of potassium ferrocyanide and hydrochloric acid. The hemosiderin deposited in the skin gives a Prussian Blue reaction with this reagent with the formation of a blue-black spot at the site of the injection.

Although the greater part of the bilirubin is excreted as waste, a small portion of it is retained in the body and used in building the molecule of hemoglobin. Heme, the essential pigment fraction of the hemoglobin molecule, and bilirubin are very closely related chemically. It is possible, also, that the liver combines certain amino acids and perhaps other chemical substances which are necessary for the building of hemoglobin by the bone marrow. In other words, the liver plays a role in the manufacture of hemoglobin for red blood cells. Furthermore, the liver stores the anti-anemic factor formed in the stomach and thus maintains a constant supply of this substance which is required for the maturation of red blood cells. Pernicious anemia, which results from lack of this anti-anemic factor, is not due to any disturbance of hepatic function but rather to the inability of the liver to obtain and store for constant use, an adequate amount of this essential substance. Cirrhotic livers have been found to be deficient in the anti-anemic factor (Wintrobe). Many patients with cirrhosis and other chronic diseases of the liver have a macrocytic anemia, which, though less severe, is like pernicious anemia in that it shows spontaneous remissions and is improved by liver therapy. Pyridoxin (vitamin B_6), which contains a pyridine ring and is either manufactured by or stored in the liver, increases the regeneration of hemoglobin and of red blood cells in anemia.

Thus the liver contains a portion of the reticuloendothelial system which is responsible for the destruction of wornout erythrocytes. By storing iron-containing pigment (hemosiderin), the anti-anemic factor and pyridoxin (vitamin B_6) and, possibly, by synthesizing certain amino acids essential for the formation of hemoglobin, plays an essential role in the regeneration of new red blood cells and in the prevention of anemia.

Bilirubin is not manufactured by the liver, and is liberated from hemoglobin by the reticuloendothelial system. The liver is merely its portal of exit from the body. When, for any reason, the liver is unable to excrete this waste product, it accumulates in the blood and, if it reaches a sufficiently high concentration, jaundice occurs.

Although bilirubin is carried in the bile to the intestine it is not normally present as such in the feces. It is reduced by bacteria in the colon to stercobilin which is similar to, if not identical with, urobilin. A portion of this reduced substance, urobilinogen, is absorbed from the colon and carried in the blood of the portal vein to the liver where most of it is re-excreted in the bile. Only a small portion normally passes through the liver to the general circulation to be filtered out by the kidneys. Extensive injury to the liver reduces its power to re-excrete this substance and leaves a larger quantity to enter the general circulation. An excess of urobilinogen in the urine is, therefore, a sensitive indicator of extensive damage to the liver.

The significance of this fact, as well as of certain others described in this paper, will be made clearer by a brief consideration of the relation of urobilinogen to the functions of the kidney and of the liver, respectively. Urobilinogen, like urea and sodium chloride, is excreted by the kidney by filtration through the glomeruli. This filtration is a purely passive process so far as the kidneys are concerned. It requires no work on their part, the energy for the process being furnished by the heart in maintaining systematic blood pressure and, through this, the filtration pressure in the glomeruli. On the other hand, urobilinogen is removed from the blood by the liver by the active process of excretion, a process which requires the expenditure of energy. A damaged kidney can still remove substances like urobilinogen from the blood as long as the glomeruli receive an adequate amount of blood under sufficient pressure. An extensively damaged liver,

on the other hand, is unable to excrete urobilinogen and similar substances because it is unable either to produce or to utilize the necessary amount of energy to accomplish this process. This is the basis of the determination of the quantity of urobilinogen in the urine as a test of hepatic function.

ROLE OF LIVER IN BLOOD COAGULATION

Of the five factors which are concerned in the coagulation of the blood, three—fibrinogen, heparin or antithrombin and prothrombin—are believed to be produced wholly or in part by the liver.

Heparin is either a phospholipid (kephalin) or, according to Best and Taylor, a carbohydrate substance, probably a compound of glycuronic acid. It prevents the combination of calcium and prothrombin to form thrombin. The liver contains a larger quantity of heparin than any other organ, but it is present in considerable amount in the muscles and lungs and in small quantities in the spleen, heart and thymus. The amount present in the plasma is exceedingly small, but is adequate to prevent intravascular clotting. One milligram of the most potent sample of heparin yet produced—that of Scott and Charles from beef liver—will prevent coagulation of 500 cc. of blood for 24 hours. Since the liver is so rich in this substance it is generally believed that it is produced solely or chiefly in this organ. But the effects of damage to the liver on the production of heparin are not known. Pathologic conditions that might affect the production of heparin would simultaneously affect other factors concerned in the coagulation of the blood. There is no method now known that will differentiate between affects on these different factors.

Prothrombin is apparently produced only by the liver and is related to vitamin K. The production of prothrombin is reduced to diseases of the liver, particularly in obstructive jaundice in which the absence of bile from the intestines prevents the absorption of vitamin K. Whether this vitamin is prothrombin, or whether it is the substance from which prothrombin is made, or whether its presence is merely necessary for the formation of prothrombin is not definitely known. But unless vitamin K is present in the liver in sufficient amount, prothrombin is not formed in adequate quantity and coagulation of the blood does not take place in the normal manner. However, hemorrhage does not usually occur until the prothrombin of the blood is reduced to about 20 per cent of the normal amount.

Hemorrhages due to hypoprothrombinemia resulting from deficiency of vitamin K, respond readily to administration of this vitamin. They are found in various conditions. (1) Prolonged use of a diet, usually low in fats, which is deficient in vitamin K may give rise to a hemorrhagic state. This condition is rare in human beings. (2) Hemorrhages in the newborn are frequently due to this cause and can be prevented by administration of the vitamin to the mother for a few days prior to delivery. (3) Diseases which interfere with intestinal absorption, such as diarrhea, chronic ulcerative colitis and sprue, may cause vitamin K deficiency, hypothrombinemia and hemorrhage. Oral administration of the natural vitamin is ineffective in such cases, but parenteral injection of the synthetic vitamin yields gratifying results. (4) Extensive damage to the liver, such as occurs in poisoning with phosphorus and chloroform and in acute yellow atrophy, result in hypoprothrombinemia even in the presence of an adequate supply of vitamin K. The damaged liver cells are unable to produce prothrombin. (5) The presence of bile salts in the intestine is essential to the absorption of vitamin K. Obstruction of the common bile duct, long continued bile fistula and the inability of the liver to manufacture bile salts induce vitamin K deficiency, hypoprothrombinemia and frequently serious hemorrhages. When vitamin K is administered to patients with obstructive jaundice, together with sufficient bile salts to insure its absorption from the intestine, prothrombin usually increases rapidly and the coagulation of the blood becomes normal and the danger of hemorrhage is removed. However, the administration of bile salts and vitamin K to jaundiced patients fails to produce these results when the jaundice is accompanied by serious damage to the liver itself. The damaged liver cells are unable, even in the presence of an adequate supply of the vitamin, to produce prothrombin. This method of treatment may, therefore, have either therapeutic or diagnostic value. When ineffective it indicates damage to the liver.

Fibrinogen is one of the plasma proteins. In

its natural state it is in solution in the plasma. In the process of clotting of blood it is precipitated by the action of thrombin in the form of a fine meshwork of filaments in which the red blood cells and other formed elements of the blood are entangled. In diseases which involve destruction of liver cells, as in poisoning by phosphorus and chloroform and in acute yellow atrophy, the amount of fibrinogen in the blood is reduced. When the blood of a patient with any of these diseases clots, it does so in normal time but the clot is soft, does not contract and solidify, and is of little value in the closure of severed vessels for the stoppage of hemorrhage. Reduction of fibrinogen is usually also accompanied by decrease in the prothrombin content of the blood. The damaged liver is unable to produce adequate amounts of either fibrinogen or prothrombin.

Extensive disease of the liver may, therefore, affect the coagulation of the blood by reducing the amount of fibrinogen or of prothrombin or of both. If prothrombin alone is reduced, there is not enough of this substance to precipitate all the fibrinogen available and the clot formed in such blood is soft and ineffective in stopping hemorrhage. If the fibrinogen alone is decreased the normal amount of thrombin is incapable of precipitating enough fibrin to produce a firm clot. When both of these factors are reduced the result is the same. These are the reasons why hemorrhage is a frequent accompaniment of diseases of the liver. Some indication of the extent of the deficiency can be determined by measuring the amount of fibrinogen in the blood and the prothrombin time. There is also a difference in the significance of the results in each case. Reduction in the amount of fibrinogen is evidence of extensive damage to the liver itself. A prolonged prothrombin time may be due either to damage to the liver or to interference with the absorption of vitamin K from the intestine because of the absence of bile salts from the intestinal contents. The result of administration of vitamin K and bile salts will reveal whether the prolonged prothrombin time is due to uncomplicated obstruction or to serious damage to the liver with or without obstruction.

BLOOD PROTEIN MANUFACTURE

It is probable also that the liver manufactures other proteins of the blood, particularly fibrinogen, serum albumin and globulin. These three substances differ in composition and in their relative amounts in the plasma. Fibrinogen has a molecular weight of over 200,000 and there is only 0.27 gram per 100 cc. of plasma. Because of the large size of its molecule and the very small amount present it has no appreciable influence on the osmotic pressure of the plasma proteins. The molecular weight of globulin varies between 150,000 and 190,000 and it is present in the plasma in the proportion of about 2.7 grams per 100 cc. Serum albumin has a molecular weight of between 70,000 and 75,000 and its normal concentration in the plasma is about 4.1 grams per 100 cc. The osmotic pressure of any substance in solution varies directly as the number of molecules present. It is evident that the number of molecules of albumin in plasma vastly exceeds that of fibrinogen and globulin combined and that it is chiefly responsible for the osmotic pressure of the plasma proteins. Because of the smaller size of the albumin molecule it can pass more easily through injured capillary walls. It is the first of the plasma proteins, therefore, to become depleted in certain diseases and is the chief factor in the production of edema of the type due to decrease of osmotic pressure of the plasma.

It is only rarely that in diseases of the liver the serum albumin is decreased below the critical level at which the osmotic pressure of the plasma proteins becomes sufficiently lowered to give rise to edema. However, in some cases of very chronic cirrhosis of the liver, in addition to the characteristic ascites due largely to increased venous pressure in the portal system, there is also edema which may be limited to the lower extremities or may be generalized. Such generalized edema is a result of depletion of plasma proteins.

One or more of three factors may be responsible for this edema. In the first place, the ascitic fluid is rich in serum albumin. Repeated paracentesis results in continued loss of plasma proteins. In uncomplicated cirrhosis of the liver the total amount of protein lost by one paracentesis may exceed 200 grams. The average daily loss from repeated paracentesis is 10 grams (Myers and Kiefer). In the second place, pressure of the accumulated fluid in the peritoneal cavity on the inferior vena cava and iliac veins may cause sufficient increase in venous pressure in the veins and capillaries of the

lower extremities to cause edema in these regions. However, this occurs only in massive ascites. Finally, the diseased liver is unable to manufacture plasma proteins in sufficient quantity, particularly in combination with further depletion by repeated paracentesis, to maintain them above the critical level below which edema occurs. Hypo-albuminemia and hyperglobulinemia are frequent in chronic hepatic disease, particularly in decompensated cirrhosis, with inversion of the albuminglobulin ratio. This hyperglobulinemia and inversion of the A:G ratio is the basis of the Takato-Ara test for hepatic function—a test which is too non-specific to be of value. After paracentesis there is frequently a rapid diminution of serum albumin in the plasma due to the prompt recurrence of the ascites. Butt, Snell and Keys assert the changes in colloid osmotic pressure of the plasma in cirrhosis are probably due to qualitative as well as quantitative alterations in the plasma proteins. Bollman believes that ascites and edema in cirrhosis are not directly related to the protein levels or to the osmotic pressure of the plasma but more definitely to the extent of the hepatic injury.

Phosphatase of the serum is increased in all forms of liver disease whether with or without jaundice. The reason for this is not clear. The liver contains only minimal amounts of this (alkaline) phosphatase and the feces contain a considerable quantity. It is possible that the normal liver may excrete this enzyme while the damaged liver is unable to do so.

The sinusoids and veins of the liver are capable of such enormous distension that they can contain approximately two-thirds of all the blood in the body. The liver is, therefore, an important factor in regulating the total volume of circulating blood. It is probably concerned in certain types of shock. The hepatic veins in this animal contain a very heavy coat of smooth muscle in the media which serves as a sort of "hepatic sphincter" (Dale). When a shock dose of a foreign protein, to which the dog has been sensitized, is given the explosive liberation of histamine causes constriction of the muscular hepatic veins. The liver becomes enormously congested with blood which accumulates behind the blockade in the hepatic veins, the total volume of circulating blood is markedly reduced, systematic blood pressure falls precipitately and the animal quickly passes into a state of shock. A similar condition can be produced by mechanically constricting the hepatic veins. Since the blood leaves the liver and enters the inferior vena cava at a place about an inch from the heart, the liver serves as a safety reservoir or "flood chamber" in which blood can be impounded to protect the heart from being overwhelmed with blood which it is unable to keep moving in normal quantity and at the normal rate because of handicaps due to cardiac disease. This ability of the liver to impound great quantities of blood may be a life-saving mechanism in patients in the early stages of cardiac decompensation.

There are interesting similarities and differences between the temporary impounding of blood in the sinusoids of the liver and its storage in the sinusoids of the spleen. In both locations the plasma loses fluid and the suspension of cells becomes more concentrated. Red blood cells stored in the spleen are shunted out of the general circulation into myriads of microscopic cul-de-sacs as part of a permanent mechanism capable of meeting any emergency need for red blood cells, if and when (i. e., before) it arises, as after hemorrhage, by discharging its store of erythrocytes into the circulation. Blood impounded in the liver is retained in the regular channels of circulation through which its passage is impeded and the rate of flow decreased, possibly by contraction of the "hepatic sphincter." The mechanism of impounding blood in the liver comes into action after the emergency, e. g., cardiac decompensation, arises and withdraws blood from the general circulation.

Furthermore, much fluid escapes from the blood in the liver in the form of lymph, so that the blood which leaves this organ is more concentrated than that which enters it. This serves as a temporary safety device when excessive quantities of water are absorbed from the intestines or when large amounts of fluids are given rapidly by intravenous injection. Most of this water is stored in the tissues, with the necessary amount of sodium chloride to maintain its isotonicity with the tissue fluids, until it can be excreted by the kidneys. While water and salt are passing into the tissues some of it is being squeezed out of the blood into the lymphatics of the liver. But this water then passes slowly by way of the thoracic duct into the left subclavian vein to be returned to the

general circulation. Hence in dealing with an exeessive intake of water, the liver plays a role in thus temporarily shunting some of the excess out of the circulating blood until it can be better stored in the tissue spaces awaiting its turn to be finally excreted through the kidneys.

SUMMARY

The liver has a larger total blood supply than any organ in the body exeept the lungs. It works under a lower oxygen tension than any other organ in the body. During fetal life it is the chief source of blood cells. It eontains a large part of the reticuloendothelial system which is responsible for the destruction and disintegration of worn-out erythrocytes. It either stores or manufactures substances which are essential for the formation of new red blood cells. It produces three of the factors concerned in the coagulation of the blood. It probably manufaetures serum albumin and globulin and maintains their osmotic pressure in the eirculating blood, thus playing an important part in the exchange of fluids between the blood and the tissues. It serves as a safety reservoir or "flood chamber" and by impounding blood proteets the heart in decompensation. These are only a part of the various activities of this versatile organ. Others will be diseussed in a later paper.

303 East Chicago Ave.

Cancer of Cervix and Fundus Uteri

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CANCER is a disease of many manifestations and ramifications, the primary purpose of which is to terminate the life of the host. Since cancer of the uterus is the most frequently encountered malignant tumor in women, it is important that the diagnostic points and methods of treatment be thoroughly familiar to all physicians so that an early diagnosis may be made and the patient referred promptly to the specialist for treatment.

The early recognition of carcinoma of the uterus is of paramount importance. This is a disease that is insidious in its development, often causing but little inconvenience to the patient until it is well advanced.

The cardinal symptoms of cancer of the uterus in the usual order of occurrence are: discharge, hemorrhage and pain. The discharge is often only an increase in a leukorrhea of long duration. As the tumor grows and becomes more vascular, the watery sero-sanguinous discharge becomes pronounced. There is then occasional blood-tinged discharge and then bloody discharge and hemorrhage. Pain is a late symptom, occuring in cases that are moderately advanced. Therefore, every woman having an unusual amount of vaginal discharge, an increase in menstrual flow, or bleeding between periods, should receive a most careful examination. Discharge and hemorrhage, even in slight amount, after the menopause should immediately be investigated; if the cause of these symptoms is cancer, the disease is in its most hopeful stage, but many physicians do a hurried manual examination or no examination at all, and thereby fail to make a diagnosis when the disease is in its curable stage.

DIAGNOSIS

There have been numerous serologieal and chemical tests advocated to deteet the presence of carcinoma in the human body as well as specifie tests for carcinoma of the uterus, but most of them have complicating factors which make them of doubtful value or useless. The only accurate method is the removal of a specimen of suspected tissue and microscopic examination of a slide prepared from the tissue.

The examination of the female patient, in which a malignancy of the genital organs is suspected, should always be done on a gyneeological table. It should include a thorough examination by palpation, both vaginal and rectal. In cases difficult to examine because of poor relaxation or pain, the author has found the use of a nembutal suppository (3 grain) inserted into the rectum 45 minutes before reexamination, of great value. The size, shape and consistency of the cervix should be recorded. The uterus should be palpated bimanually. The size, shape, consisteney, position and mobility should be recorded. With a finger in the rectum, the palpation of the adnexa is

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Annual Session

NEW MEXICO MEDICAL SOCIETY

SANTA FE

June 25-26-27

1942

Headquarters: LA FONDA HOTEL

THURSDAY, JUNE 25

8:00 Council.

9:00 House of Delegates.

10:00 Address—Governor John E. Miles.

10:30 President's Address.

11:00 Movie, "Sex Hormones, Physiology, Diagnosis, Therapy."

12:00 Round Table Luncheon.
Dr. T. Donald Cunningham—Allergy.
Dr. F. P. Gengenbach—Pediatrics.
Dr. Wm. W. Haggart—Surgery.

2:00 "Allergy and Acute Disturbances of the Gastro-Intestinal Tract."
Dr. T. Donald Cunningham, Denver, Colorado.

2:30 "Surgical Treatment of the Acute Abdomen."
Dr. William W. Haggart, Denver.

3:00 Title to be announced later.
Dr. G. P. Lingenfelder, Denver.

3:30 "Prevalent Personality Problems of Childhood and Adolescence."
Dr. F. G. Ebaugh, Denver.

4:00 To Be Announced Later.

4:30 Movie: "Immunization Procedures."

FRIDAY, JUNE 26

9:00 Skin Clinic.
Dr. G. P. Lingenfelder, Denver.

9:30 Special Phase (to be announced later) of Surgery of Ovary.
Dr. Gerritt Heusinkveld, Denver.

10:00 "Internal Derangement of Knee."
Dr. Robert Packard, Denver.

10:30 "Signs and Symptoms of Impending Nervous Disorders."
Dr. F. G. Ebaugh, Denver.

FRIDAY, JUNE 26—continued

11:00 "Chronic Gall-bladder Disease."
Dr. Wm. W. Haggart.

11:30 Movie.

12:00 Round Table Luncheon.
Dr. Gerritt Heusinkveld—Gynecology.
Dr. G. P. Lingenfelder—Dermatology.
Dr. Franklin G. Ebaugh—Psychiatry.
Dr. Robert Packard—Orthopedics.

2:00 "Early Treatment of Compound Fractures."
Dr. Robert Packard, Denver.

2:30 Title to be announced later.

3:00 "Endocrine Phase of Menstrual Disorders of Puberty."
Dr. Gerritt Heusinkveld.

3:30 "Pneumonia Diagnosis and Treatment."
Dr. T. Donald Cunningham, Denver.

4:00 "War Surgery."
Lt. Col. N. A. Myll.

SATURDAY, JUNE 27

9:00 "Adequate Nutrition for Children During War Period."
Dr. Wylder, Albuquerque.

9:30 "Eye Conditions of Interest to the General Practitioner."
Dr. A. W. Egenhifer, Santa Fe.

10:00 "Procurement and Assignment Service."
Dr. Harvey T. Sethman, Denver.

10:30 "Treatment of Fractures of the Humerus with the Hanging Cast."
Dr. M. G. Rosenbaum, Albuquerque.

11:00 Reports and Resolutions.

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easily accomplished. Enlargements or tenderness of the fallopian tubes and ovaries is easily determined. Early induration in the broad ligaments can be detected much easier by the rectal palpation than by the vaginal method.

A bivalve vaginal speculum should be properly inserted, and careful inspection of the vagina and cervix carried out. The large everting type of cancer is easily recognizable, and a specimen for diopsy is easily obtained by the use of a biting forcep. It is sometimes necessary to stop the bleeding from this procedure by the use of electro-coagulation. Inspection alone is not reliable when the cervix is lacerated or hypertrophied, therefore, a specimen should be removed for a biopsy from the area most suggestive of cancer. The characteristic appearance of cervical erosion is usually considered sufficient to rule out cancer, but in every such case a specimen for biopsy should be removed from the most suspicious looking area.

After the vaginal speculum has been removed, the table should be extended so that the patient can lie in a comfortable supine position. The abdomen should then be palpated with particular attention being directed to the iliac fossae and the regions along the lumbar spine so that extensions of the malignancy will not be overlooked.

When a bulky everting carcinoma is not present, the patient should have a dilatation of the cervix, and careful currettage of the cervical canal. Cervical polyps are smooth, pedunculated masses that are easily removed for biopsy. It is sometimes diffieult, at times impossible, to determine whether the specimen of adenocarcinoma obtained by curretage came from the upper end of the cervix or the fundus. Sharp uterine currettes should be used in the fundus. Since the site of predilection for adeno-carcinoma of the fundus is in the fornices, they should be carefully searched with the currette. Currettage should be done with great care for it is easy to perforate a uterus through an area of friable carcinoma. Sarcoma of the uterus is a rare condition and usually is diagnosed when the uterus is removed for suspected fibroids, or metastasis are found in the lungs, or at autopsy.

Microscopical study of the specimen removed is the only method of establishing the true nature of the pathological process. It will eliminate making an erroneous diagnosis of malignancy on lesions caused by such diseases as tuberculosis, chancroid, trichomonis vaginitis, infectious granuloma, syphilis, etc.

TREATMENT

In planning the treatment for cancer of the cervix, a method of classifying the extent of the disease from the clinical viewpoint is of great importance, since the clinical extent of involvement is the major factor in determining the prognosis. The clinical classification of cancer of the cervix by Schmitz[1] is clear and concise. It is as follows:

"*Stage I.* Beginning nodule or ulcer not larger than 1 cm. in diameter with normal mobility of uterus and adnexa."

"*Stage II.* A tumor or ulcer involving one-half or all of cervix in either the transverse or longitudinal diameter, and dough-like consistency of the para-cervical tissue. The uterus then assumes a decreased mobility due to loss of normal elasticity of the adjacent connective tissue."

"*Stage III.* (a) Tumor or crater of cervix with rigidity of adjacent tissues. (b) Involvement of the paravetrium, the vaginal lymph nodes, or both. The mass as a whole has impeded mobility."

"*Stage IV.* (a) Involvement of the parametrium, the vaginal lymph nodes, or both, with faxation. (b) Involvement of bladder, rectum, or vagina. (c) Distant metastasis."

The best therapeutic opportunity is when the patient first consults the physician. Every delay, including inadequate therapy, lessens the efficacy of skillful efficient treatment.

The surgical removal of the uterus by the radical operation of Wertheim can be considered only in those early cases of Stage I, who are in exxcellent condition for operation, to be done by a specialist who has all facilities at hand, including well-trained assistants experienced in such a procedure. The general surgeon should never attempt the surgical eradication of carcinoma of the cervix. The fact that so few cases are seen in early Stage I of the disease means that the great majority, if not all cases of carcinoma of the cervix, should be treated by radiological methods.

The proper treatment of cancer of the cervix by the use of Roentgen rays and radium requires their use by a well-trained radiologist. Every case should have an individualized treatment schedule. The use of radium by physicians not adequately trained in radium therapeutics

cannot be too strongly condemned. In most cases, the author gives the initial treatments by Roentgen therapy so that a reduction in the size of the primary lesion, together with the control of any infection present in the lesion, is thus accomplished. This makes the radium application more efficacious to the primary lesion and parametrial tissues and greatly lessens the incidence of infection following the radium implanatations. The proper control of cancer of the cervix requires from 2400 to 2800R to be delivered to the region of the adnexa in about 25 days plus an adequate radium technique, as is later described in this paper, which is to precede or follow the X-ray therapy by about 6 weeks.

This is best accomplished by using high or super voltage Roentgen rays directing treatment through two portals over the anterior pelvis and two portals over the posterior pelvis of 10x15 cm. size or larger depending on the size and condition of the patient. Two lateral portals of 10x15 cm. size may be added if additional portals are necessary, because of the size of the patient, to deliver the desired dosage to the adnexa without undue damage to the skin of the treated areas. These lateral portals are seldom necessary.

The author uses an X-ray beam generated by impressing 200 kv. across the tube with 18 ma. flowing, using 50 cm. focal skin distance, with filtration of .4 mm. tin., .25 mm. copper and 1 mm. aluminum, (1.9 hvl.) or 80 cm. focal skin distance with filtration of .5 mm. copper, 1 mm. aluminum. Treatments of 200R measured in air, are given daily through an outlined portal on the back and front of one side of the pelvis. This means each side is treated every other day until the desired dosage in the adnexa is obtained. About six weeks following the completion of this course of treatment, the patient is hospitalized and a radium technique using capsules of various size with .5 mm. platinum and 1 mm. aluminum filtration is carried out. An area of the cervical canal and fundus 6 cm. in length receives 1200 to 1800 mg. hours in 34 hours. The next day 1200 to 1800 mg. hours are given to the face of the cervix by two capsules 3 cm. in length and placed 2 cm. apart and remaining in place for 24 hours. The following day 600 to 900 mg. hours are given by each of two capsules 3 cm. in length, placed as far laterally as possible in the vaginal fornices and remaining in place for 24 hours. It is of the utmost importance that the radium capsules be correctly placed, and that the rectum and urinary bladder be carefully separated as far as possible from the radium capsules by adequate amounts of gauze packing. Following each radium application, the position of the radium capsules should be checked by radiographs.

This combined method of treatment of cancer of the cervix produces changes in the skin over the treated areas, some nausea, diarrhea, and occasionally cystitis and proctitis, all of which can usually be controlled by the intelligent use of drugs and good medical care. The patient's reaction to the treatment, while severe, is not unbearable. The results obtained by this plan of therapy are very encouraging.

In advanced cases with parametrial extensions of marked degree with complete fixation of the uterus, it is occasionally advisable to use a technique employing radium needles inserted in a circular pattern at the periphery of the cervix, parallel to the cervical canal. The platinum needles, 5 cm. in length and containing 2.4 mg. of radium, are placed about 1 cm. apart, and plunged into the periphery of the cervix in a position corresponding to the numerals on a clock face. Then radium needles of the same type are turned laterally and inserted into the parametrial tissues on each side. These are left in place for from five to seven days. The vagina is packed with gauze soaked in balsam of peru. The packing in the vagina is changed every 48 hours.

In the treatment of carcinoma of the fundus of the uterus, preliminary X-ray therapy followed in six weeks by the proper application of radium in specially designed applicators[1, 2, 3], to be followed in six weeks by surgical removal (pan hysterectomy) is the method of choice. The pre-operative radiation dosage is similar, though less intensive, than that described above in the treatment of carcinoma of the cervix, but is planned individually for each case. If the patient's condition or decision is such that surgical removal cannot be done, then the plan of radiation treatment is changed so that the patient is given as intensive a course of treatment as is possible. The best results are obtained by pre-operative radiation therapy plus surgery, but radiation therapy alone approaches these results. Both of the above methods give

results better than those obtained by surgery alone.

The most important complication of cancer of the uterus is obstruction of the ureters with hydronephrosis, renal insufficiency, uremia and finally death. Intravenous pyelography should be done on all cases before therapy is started and at three to six month intervals thereafter. Obstruction to the ureters, if found early, can usually be relieved by proper dilatation and care by a competent urologist. Bone metastasis is rarely seen since uterine malignancy tends to spread by direct extension and to regional lymph nodes. Bone metastasis is being seen more often since better control of the primary lesion and regional extensions give longer remissions of even advanced cases. It is important to remember that an examination by radiographic methods should be made of any region of the skeleton where pain is persistent.

SUMMARY

To recapitulate, cancer of the uterus is a commonly encountered malignancy. It can be satisfactorily controlled if an early diagnosis is made and prompt, adequate treatment is given. Cancer of the uterus, even in late stages, offers an excellent opportunity for palliation, with lengthening of life, relief of pain, and improvement in the general well being of the patient. It should be the ambition of every physician to aid in lowering the mortality rate from cancer, and in lessening the suffering of the patient with cancer.

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Retrobulbar Neuritis

(Diagnosis, Etiology and Treatment)

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INTRODUCTION

A REVIEW of the literature on retrobular neuritis for the past ten years discloses some seventy essays and reports with footnotes multiplying the references to several hundred. On first perusal this voluminous material seems formidable, challenging one's ability to assimilate the large mass of facts, but continued study reveals some very pertinent and constant findings which relieves the perplexity of the controversial thought expressed.

Much of this controversy centers about the endotoxic origin of the disease, some of it about the differential diagnosis, and some about the treatment.

In this presentation the essayist will attempt to evaluate the substance of the literature and present his own viewpoint based on experience gained from clinical management. It should savors somewhat of a textbook description of the disease and serve as a guide in making a diagnosis, establishing the cause, arriving at a prognosis and determining a course of treatment.

The components of this essay will be taken up in the order in which they command the attention of the clinician.

SYMPTOMATOLOGY

In the history of the symptomatology the cardinal visual complaint is lowered visual acuity, generally of recent occurrence and of either sudden or gradual onset. The patient may or may not be aware of a central scotoma or his vision may have failed so rapidly as to be completely obscured in a few hours. Bilateral occurrence is not common, but when it is present one eye is usually more affected than its fellow.

In acute cases recovery is often rapid beginning in a few days and ending with complete recovery in about a week or with more or less permanent central scotoma.

The chronic cases run a protracted and progressive course and result in more or less permanent damage to the optic nerve with its consequent in loss of vision.

Since the syndrome may be ushered in with an acute contagious diseases, fever and malaise may be present as initial symptoms.

Deep orbital pain is present in some cases, but is not a constant symptom and may vary according to the etiology or may be present merely as an indirectly related symptom such

as in sinus disease where the pain originates in the sinuses per se.

DIAGNOSIS

Having elicited pertinent historical facts regarding development of symptoms and such others as use of alcohol, nicotine, drugs, diet, and the like, the diagnosis of retrobulbar neuritis is contingent upon ophthalmoscopy and perimetry.

OPHTHALMOSCOPY

In the strictest sense the term implies that there are to be no signs of optic neuritis in the fundus, and the disc is to have a perfectly normal appearance, but in the broader viewpoint paleness of the disc and even distinct optic atrophy may be observed in late stages of chronic retrobulbar neuritis.

Benedict has pointed out a most important observation regarding the condition of the optic nerve head and emphasized its prognostic value. He states that, "one characteristic of functional blocking of the optic nerve is a waxy palor of the disc without loss of substance. The nerve head is pale, but nerve substance can be seen as a translucent material within the scleral ring obscuring the view of the lamina cribosa. Restoration of or improvement in vision can be prognosticated if the pressure causing the visual disturbance and palor is removed."

It seems to the writer that this distinction is of paramount importance and should never be overlooked.

PERIMETRY

The most characteristic observation in perimetric studies of retrobulbar neuritis is a central scotoma which can be (1) relative for white, (2) absolute for colors, or (3) absolute for white.

Less characteristic but nevertheless quite common are peripheral changes such as scotomata or general concentric contraction of the fields, and in some instances chiasmal syndromata are present. If one wishes to accept an even broader scope for the disease, one or the other optic tract can be involved in a process which is no different from that involving the optic nerve and produces field changes according to the location of the lesion. In the broad sense then, there can be pre-chiasmal, chiasmal, or post-chiasmal retrobulbar neuritis, and these diagnoses can be made with sufficient pertinent data.

ETIOLOGY

Etiological constituents in this disease are legion in the literature, giving the reader the impression that under certain conditions the optic nerve elements are very vulnerable structures, and leads one to reflect upon the possibility that many cases of so-called amblyopia may actually be arrested cases of retrobulbar neuritis This also invites speculation as to the relation of acute exanthemata to coincident strabismus and the discovery of amblyopia in these cases. Perhaps the diseases of childhood are more imminent to stragismus than has been previously conceded.

The syndrome described as retrobulbar neuritis can be produced in two principal ways, by action of pressure or the action of toxins and possibly by glandular dysfunction or avitaminosis. It, therefore, seems appropriate to present in tabulated form the known and suspected causes reported.

A. *Pressure:* (from without)
   1. Anatomical anomalies of bones such as steeple skull of congenital syphilis, vessels, etc.
   2. News growths.
   3. Ecchinococcus cyst.

B. *Pressure:* (from within)
   1. Multiple sclerosis. Swelling and infiltration of the septal network of tissue within the nerve trunks.
   2. Schilder's disease. A primary degenerative disease of more extensive order.
   3. Metastasic carcinoma.
   4. Hodgkin's disease.

C. *Exotoxic Origin:* (Unsually with their specific concommittant symptoms)
   1. Alcohol.
   2. Nicotine.
   3. Lead.
   4. Quinine.
   5. Arsenic.
   6. Thallium (depilatory).
   7. Apiol.
   8. Carbon Sulfide (used in vulcanizing rubber)).
   9. Veronal (2 cases taken with suicidal intent).
   10 Botulism.
   11. Plasmociae.

D. *Endotoxic Origin:*
   1. Acute contagious diseases.
   2. Influenza.
   3. Tuberculosis.
   4. Syphilis.

5. Intestinal toxemia.
6a. Focal infection (teeth, tonsils, kidney, pelves prostate).
6b. Sinus disease
   a. Through contiguous structures.
   b. Through lymphatics or blood stream.
7. Diabetes.
8. Pernicious anemia
9. Sympathetic ophthalmia
10. Myelitis
11. Pregnancy
12. Serous meningitis

E. *Glandular:*
1. Pituitary and gonadal deficiency (normal sellano pressure)

F. *Avitaminosis:*
1. 38 cases among Chinese
2. Pellagra diagnosed by skin lesions

G. *Hereditary Optic Atrophy* (Leber's disease)

External Pressure

It is self evident that pressure from various extraneural sources can produce varied and bizarre syndromata and could simulate retrobulbar neuritis. From a functional standpoint the end result is the same whether the degenerative process be caused by pressure, inflammation or anoxia.

Internal Pressure

Multiple sclerosis is responsible for the majority of the intraneural pressure lesions and the plurality of all cases of retrobulbar neuritis. One striking example of this is Benedict's report from the Mayo Clinic in which he numbers 155 cases of multiple sclerosis in 255 cases of retrobulbar neuritis collected.

Exotoxic Origin

From the tabulation it is at once apparent that a large number of exogenous and endogenous causes are conceded. There is little controversy about those of exotoxic origin and it is evident that when organic as well as inorganic poisons are ingested the optic nerve can suffer as well as other organs.

Glandular Deficiency

Only one case of glandular insufficiency associated with retrobulbar neuritis was found. The sella was normal so pressure was not considered the cause.

Vitamin Deficiency

The report of C. K. Lin of 53 cases, 38 of which might have been on a basis of avitaminosis is interesting as are three cases of pellagra reported by Fine and Lachman. Pellagra was diagnosed by the skin lesions and retrobulbar neuritis was present. The latter suggest that "It does not seem improbable that the relationship existing between Vitamin B_1 deficiency and the peripheral nervous system may also exist between Vitamin B_2 deficiency and the central nervous system of which the optic nerve is a part, and that in each case alcoholism plays only an indirect role.

Endotoxic Origin

Acute contagious diseases, tuberculosis and syphilis are conceded to be important causative agents of retrobulbar neuritis of endotoxic origin, but the part played by sinus disease is keenly debated.

Sinus Disease

From an anatomic standpoint variations permit diversified relationships between the ethmoidal and sphenoidal cells and the optic nerve. It is possible that disease of the mucosa may extend directly into the adjacent nerve or toxins may diffuse through bordering blood vessels.

Meyer Wiener, for example, asserts that hyperplastic sinus disease as well as suppurative sinus disease is frequently the cause of intrabulbar as well as retrobulbar neuritis. In the hyperplastic cases he states he has seen many instances where shrinking the nose resulted in alleviation of all the symptoms.

Traquair claims that in Edinburgh he and his colleagues have come to the conclusion that rhinogenic retrobulbar neuritis is very rare and that he had never seen a case which he could attribute to infected teeth or tonsils, but admits he had seen patients recover after removal of such foci. He doubts whether toxins from these sources have the necessary neurotropic affinity.

The manner in which toxic material is absorbed from the sinuses was investigated by Mullin and Ryder, who concluded that absorption of bacteria as well as inert substances from the frontal sinuses and antrum is through the lymphatics connecting with the submaxillary and internal jugular nodes. This would seem then to help exluded these sinuses from the causation of retrobulbar neuritis.

Finally, there have been multitudes of cases of suppurative sinus disease without visual symptoms.

PATHOLOGY

That pathological lesion may occur anywhere along the course of the optic nerve, chiasm or

tracts and upon its location depend the symptoms and signs already described, and if the lesion is far back, nothing will be observed with the ophthalmoscope unless atrophic changes take place. It has been demonstrated by Friedenwald that atrophy proceeds more rapidly in the direction away from the retina than toward the retina, so disc changes may appear very long after the acute process has subsided.

In the cases of intraneural pressure such as caused by multiple sclerosis degeneration of the nerve fibres is in focal areas. The myelin sheath and supporting structure becomes swollen and compresses the nerve bundles until atrophy and sclerosis ensures.

Toxic degeneration presents a picture of cellular infiltration with round cells followed by degeneration of the axis cylinders and atrophy without sclerotic thickening. This may be axial or peripheral in type with consequent central scotoma or peripheral scotoma and contraction of the fields as the case may be.

A. Juba reported autopsy of a case of chronic alcoholic retrobulbar neuritis in a young man of 34 who also suffered from delerium tremens, polyneuritis and pulmonary tuberculosis.

Degeneration of the papillomacular bundle could be traced in this case in the optic nerve, chiasm, and tract to the external geniculate body where a dorsocentral area of atrophy was found. Fine, well-defined, symmetrically arranged fatty degeneration was also found in the optic radiations completing the picture.

TREATMENT

In the cases caused by external pressure functional improvement is dependant upon the removal of the pressure and the condition of the nerve at this time. Benedict's criterion of absence of loss of nerve substance is important in the prognosis.

Where the disease is of exotoxic origin it is self-evident that the exotoxins must be eliminated.

In the group of endotoxic origin removal of the cause may be more difficult. Antiluetic treatment and tuberculin treatment are to be used where indicated and, of course, constitutional disease should have its required attention.

Suppurative sinus disease should be treated just as it would if retrobulbar neuritis were not present. There does not seem to be any justification for extensive sinus surgery in the absence of positive pathology of the sinuses. Shrinking of the membranes and such other conservative procedures are of course in order.

The administration of Vitamin B complex is justifiable in the light of our present knowledge as it apparently speeds up the recovery from symptoms.

The keynote of all other treatment is vasodilatation which relieves the anoxia of the tissues by increasing the peripheral circulation. This can be accomplished by many means.

Foreign protein therapy such as the administration of diluted typhoid vaccine (25,000,000 organisms in 5 c.c. of salt solution) can be used for several weeks.

Concurrent malarial infection has been reported as being beneficial.

Pilocarpin sweats or fever therapy accomplishes vasodilatation.

Sodium nitrite 0.5 c.c. to 1.00 c.c. of a 10% solution is effective in acute cases where permanent damage has not been done. It is administered for 6 to 8 days.

Acetylcholine 0.1 gm. daily intramuscularly compares favorably with sodium nitrite.

Intravenous iodine is recommended.

The retrobulbar injection of 1/100 of a grain of atropine is efficacious.

Lumbar puncture done in 45 cases gave satisfactory results according to one author, but this writer does not advise it unless there were some specific indication.

Shrinking of the sinuses with cocain and adrenalin is followed by vasodilatation and may owe its efficacy to this fact. Operating on the nasal sinus is an auto vaccination and this has been offered as the possible explanation for the only temporary benefit achieved in some cases by this procedure.

SUMMARY

1. Acute retrobulbar neuritis is due to tissue anoxia from angiospasm followed by increased permeability of the vessels and sometimes thrombosis.

2. Almost any inorganic or organic substance which is poisonous to the tissues might be causal.

3. Likewise any acute infection can apparently produce the same affect from its endotoxins.

4. Endocrines and Vitamin B complex seem to be factors in the control of retrobulbar neuritis.

5. Analysis of the many reports and the

varying results from sinus surgery indicate that no direct result may be expected from sinus surgery, and that surgery should be performed only when there are other indications for it regardless of the presence of retrobulbar neuritis.

6. Duggan has clearly demonstrated the affect of exposure to cold and chilling as a precipitating factor.

7. The pathological physiology of the disease is similar to that of shock and histamine poisoning.

8. In the light of present knowledge one is justified in prescribing Vitamin B complex for every case of retrobulbar neuritis.

9. Vasodilatation is the keynote of all the known efficacious therapy described for retrobulbar neuritis sodium nitrite being the agent of choice because of its prolonged action, safety and ease of administration.

10. No sharp line of distinction should be drawn as to location of the lesion as the same process may occur anywhere along the pathway of the optic nerve from the globe to the primary optic centers.

11. And finally, the term acute angiospastic neuropathy suggested by Duggan seems far more appropriate than any other.

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AMERICA AT WAR

FIRST AID FOR AIR RAID CASUALTIES

First aid measures applicable to the emergencies of war are embodied in a "Handbook of First Aid" issued by the Medical Division of the Office of Civilian Defense in cooperation with the American National Red Cross for the use of enrolled civilian defense workers.

The new handbook is of pocket size and has twelve chapters titled as follows: Advice to the Civilian Defense First Aid Worker; General Considerations; Care of Wounds; Dressings and Bandages; Hemorrhage; Burns; Shock (Collapse); Fractures; Artificial Respiration; Transportation of the Injured; Chemical Warfare; Miscellaneous Conditions. It will be seen from the titles that all material not relevant to the war emergency has been omitted from consideration. The book does not replace the standard Red Cross "Textbook of First Aid", which is to be used in first aid classes.

First aid measures are described within the framework of the plan for Emergency Medical Service; that is, they are described as they will be carried out under war conditions.

Numerous illustrations clarify such procedures as tying bandages, pressure to stop hemorrhage, application of traction splints and methods of transporting the injured.

Throughout the handbook, the first aid worker is cautioned against any action that should be left to a physician or any that would handicap the physician when he arrives. One of the cardinal principles emphasized is "Remember you are a first aid worker and not a physician." For instance, the worker is taught not to apply any antiseptic to a wound, not to apply ointment or salves to a burn.

About twenty pages are devoted to discussion of fractures, with detailed descriptions of fixed traction splints for upper and lower extremities, as well as improvised splints.

The chapter on chemical warfare describes types of war gases and lists briefly under each type the characteristic effects it produces and the appropriate first aid measures. This chapter also includes instruction on care of burns caused by incendiary bombs containing phosphorus. The essential point brought out is that particles of phosphorus must be removed before the usual care for burns can be given. The wound must be immersed in hot water, which will melt the phosphorus so that it may be wiped out with a gauze pad.

If only cold water is available, the phosphorus may be picked off if the wound is held under water. Another method is to apply a solution of copper sulfate (2 to 5 percent). The coating of copper makes the phosphorus stop burning and the particles may be lifted out with tweezers.

The "Miscellaneous Conditions" include heat stroke, heat exhaustion, heat cramps, frostbite and carbon monoxide poisoning.

PHARMACISTS IN CIVILIAN DEFENSE

Pharmacies may cooperate in the civilian defense program in many ways, but they are entirely unsuitable for use as first aid stations, as has been proposed in some communities, the Office of Civilian Defense indicated in recent instructions issued to its field staff.

The large amounts of glass in every drug store would make them dangerous if a bomb ex-

plosion occurred in the neighborhood and the limitations of space would make handling of casualties in them impossible, it has been pointed out.

The Emergency Medical Service program which has been worked out with great care by the Medical Division of OCD provides for casualty stations and first aid posts near the scene of a disaster, manned by physicians, nurses and medically trained auxiliaries. It is important, therefore, "that no Civilian Defense designation be given pharmacies which would tend to confuse the public concerning the location of Casualty Stations and First Aid Posts of the Emergency Medical Service," the instructional letter says.

On the other hand, pharmacies may help distribute official bulletins and phamphlets issued by the state or local defense councils. Other ways in which the pharmacist may help were listed by OCD as follows:

1. Register with the Chief of Emergency Medical Service in his community, indicating the supplies he has available.

2. If he has a delivery truck available for emergency transport, register it with the transport office of the local Defense Corps.

3. Register his pharmacy with his air raid warden, indicating the telephone and other facilities he has available.

4. Place his services at the disposal of the local Defense Council for displaying placards and distributing hand bills and other information authorized by the State and local Civilian Defense Council.

5. Inform himself of the organization, location and character of protection facilities in his neighborhood so that he can direct citizens to shelters, wardens' posts and casualty stations.

6. Review and extend his own training in first aid and prepare himself to instruct others in his employ by qualifying as a Red Cross Instructor.

7. Large pharmacies should establish among their employees a Volunteer Red Cross First Aid Detachment which can be immediately available to serve as Medical Auxiliaries to assist in the transportation of casualties.

TEXTBOOK ON WAR GASES

"Protection Against Gas," a textbook on war gases to be used for instruction of public employees and volunteers enrolled in the various groups of the United States Citizens' Defense Corps, has been issued by the U. S. Office of Civilian Defense. The book was prepared by the War Department under the direction of the Chief of Chemical Warfare Service, U. S. Army, with suggestions of the National Technological Civil Protection Committee, a special advisory committee of engineers.

The 75 page manual contains descriptions of the principal gases, their effects and the first aid measures to be used in the care of persons who have been subjected to gas attack. Methods of individual protection, which include the use of masks and wearing of protective clothing, and methods of collective protection such as use of gasproof shelters and methods of decontamination are described. There is a chapter on protection of animals.

DECONTAMINATION OF EYES AFTER EXPOSURE TO LEWISITE AND MUSTARD

Since publication of the Office of Civilian Defense handbooks, "First Aid in the Prevention and Treatment of Chemical Casualties" and "Protection Against Gas," further experience has shown that the 2% solution of hydrogen peroxide recommended for the treatment of eyes following Lewisite burns may be injurious if used undiluted. The Chemical Warfare Service now recommends a single instillation in the eyes of a 0.5% solution of hydrogen peroxide as soon as possible after contamination with Lewisite. This solution may be prepared by diluting one part of a 2% solution with three parts of water, or one part of a 3% solution with five parts of water. The solution usually found in drug stores is then S. P. strength of 2.5 to 3.5 per cent hydrogen peroxide. A 0.5% solution of potassium permanganate has also been found effective as an eye instillation following exposure to Lewisite.

In planning decontamination stations, the Medical Division, Office of Civilian Defense, recommends that provision be made near the entrance of the second or shower room for the irrigation of the eyes of contaminated persons. The schematic sketch of a decontamination station in the Office of Civilian Defense publications mentioned above shows the irrigation of eyes in the dressing room, whereas this should be carried out in the second or shower room be-

fore the bath is given. Delay until the casualty reaches the dressing room will result in more serious injury to eyes which have been contaminated with mustard or Lewisite.

PREMEDICAL AND MEDICAL STUDENTS

Appointments as Ensigns in United States Naval Reserve

The secretary of the Navy recently approved a change in Navy regulations whereby it is now possible for those premedical students who have been accepted for entrance to, and all medical students in, Class "A" medical colleges, to be appointed in the United States Naval Reserve in Class H-V(P)), provided they meet the physical and other requirements for such appointment.

Students who are acceptable will be given provisional commissions as Ensigns, and it is the policy of the Bureau of Medicine and Surgery not to nominate such officers for active duty until after they have completed their prescribed medical studies and shall have served one year's satisfactory internship in a civilian hospital accredited for interne training, or shall have been accepted as Acting Assistant Surgeon in the Navy for interne training.

Upon graduation, and when the bureau has been informed of this fact by the Dean, commissions as Lieutenant (junior grade) MC-V(G), USNR, will be issued to provisional Ensigns and, after serving their internship in non naval hospitals, they will be nominated for active duty. Application for, or acceptance of, either a provisional or permanent commission in the Naval Reserve, does not preclude the possibility of applying for a commission in the Medical Corps of the regular Navy. Persons affiliated with the Naval Reserve are not subject to induction into Army service by action of local Selective Service Boards.

Navy regulations require that all applications for appointments in the Naval Reserve be filed with the Commandant of the Naval District in which the applicant resides. The address of the Commandant of your district may be obtained from the Dean of your college.

Application forms may be obtained from the Dean's office or from someone designated by him, upon request from the Bureau of Medicine and Surgery, Navy Department, Washington, D. C., or from the Commandant of your Naval District. When your application form has been properly completed, it, together with the other credentials indicated on the application form, should be mailed to the Commandant of your Naval District. He will instruct you relative to obtaining a physical examination, finger prints, etc.

In the case of a premedical student, it is necessary to enclose with your application for appointment a statement, signed by the Dean of a medical college, to the effect you have been accepted as a first year medical student in a Class "A" school for the next entering class.

It is the understanding of the Bureau of Medicine and Surgery that Selective Service Boards will accept a statement from the Commandant of your Naval District to the effect that your application is on file, as basis for deferment until your application has received final action.

SOLDIERS AND SAILORS ON LEAVE WHO BECOME ILL

The members of the United States Navy on leave who become ill are eligible for medical care in a Navy sick-bay or under the care of a Navy medical officer. If these facilities are not available, a sailor on leave may seek service in a private hospital or through a private physician with reimbursement from the Navy.

The policy in the Army is not the same. A soldier on leave who is away from his post less than 12 hours and becomes ill may apply to an Army hospital or a private hospital or a private physician for treatment at the expense of the Army. The Army will not, however, pay for hospital or professional services for a soldier on leave who applies for such services beyond 12 hours after leaving his post. A soldier on leave may receive care from an Army hospital or an Army physician at any time.

CAMPAIGN FOR DIPHTHERIA AND SMALLPOX IMMUNIZATION

The Office of Civilian Defense, at the request of the Children's Bureau of the U. S. Department of Labor, is cooperating with the Conference of State and Provincial Health Authorities of North America and the Children's Bureau in promoting a campaign for the immunization of children against diphtheria and smallpox. In a memorandum to Regional Officers, the Director of the Office of Civilian Defense directed

Regional Medical Officers and Assistant Regional Directors in charge of Volunteer Participation to urge state and local medical defense officials to support the health officers in their communities in this activity as a measure for wartime protection of the civil population.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

The regular meeting of the El Paso County Medical Society, presided over by Dr. Barrett, President, was held March 23, 1942 in the Tea Room of the Hotel Cortez.

A very interesting presentation was made by Capt. M. W. Boynton entitled: "Endocrines in Gynecology." Almost everyone who participated in these discussions said that this was, without doubt, the best presentation of the subject that he had ever heard. Capt. Boynton clarified and brought up to date the endocrines used in gynecology with a full discussion at the end of Stilbestrol. Those that participated in the discussion are: Dr. Hart, Dr. Snidow, Dr. Hardy, Col. Gallagher, Dr. Dutton, Dr. Curtis, Dr. Breck, Dr. Gorman and Dr. Causey.

Dr. Bob Homan brought to the attention of the meeting that only a few doctors had registered with the Civilian Defense. If you expect to do any moving around during a black-out it is absolutely necessary to be registered.

Mr. E. B. Powell of Ortho Products, makers of Ortho Gynol, presented a moving picture with sound entitled: "The Prevention of Fertility."

Meeting adjourned.

Chas. F. Rennick, Secretary.

El Paso County Medical Society met on April 13, 1942, for this program:

Cholecystic Disease—Round Table Discussion.
(Discussion opened by Dr. James J. Gorman)

At the regular Staff Meeting of the Hotel-Dieu Sister's Hospital, Tuesday, April 7, 1942, the program was:

Pneumococcic meningitis .....Dr. Bennett
Discussion .....Dr. Duncan
Symptomless Bronchiogenic Carcinoma, complicating accidental injury...Dr. Stevens
Discussion.....Dr. Duncan, Dr. Waite

The regular meeting of the City-County Hospital Staff, Wednesday, April 15, 1942, at 6:30 p. m., was devoted to the following program:

Coccidioidal Granulomas, and case of Ichthyosis, by Dr. Leslie M. Smith.

The regular meeting of the El Paso County Medical Society, presided over by Dr. Barrett, President, was held March 9, 1942 in the Tea Room of the Hotel Cortez.

A paper was given by Capt. Wm. H. Frackelton entitled "Purposeful Splinting of the Hand." Discussion by Drs. Louis Breck, Leighton Green, Capt. McIntyre, Dr. E. B. Rogers, Lt. Smith, E. J. Cummins, and Col. Paul Gallagher.

A letter from the Central Council Social Agencies with regard to the appointment of a new health director was read by the secretary. An explanation of the letter was made by Dr. Hart who had been present at the meeting of the Health Division Council when the subject was discussed. There was considerable discussion lead by Drs. Gallagher, McCamant, Green and Morgan. This discussion brought up the idea that possibly the Central Council of Social Agencies wanted the appointment of Dr. Johnson of the Public Health Service to the office of Health Director of the local Unit. A motion was made by Dr. Cummins and seconded by Dr.

Laws to the effect that the secretary should answer the letter stating to the Council that the El Paso County Medical Society wishes to cooperate with the Board of Health and endorses the requirements and standards of the State Health Department, but up to the present time no names of candidates have been presented to this Society by the City Council or Commissioners Court for endorsement.

Meeting adjourned.

Chas. F. Rennick, Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION

(Louis W. Breck, M. D., Associate Editor)

A most interesting and important bit of news in connection with the Southwestern Medical Association is the matter of the meeting next fall. There is considerable difference of opinion among members of the executive committee, as to whether or not a meeting should be held. Final action on the subject has not been taken and the concensus of opinion seems to be that a meeting should be held in November as usual, but that guest speakers be dispensed with and that "local talent" be used from within the organization. This would cut down the expense of the meeting by about $1000, which would make it financially possible to hold a meeting even with a smaller attendance. Amongst the members of the Association at large there are many who think that the Association should suspend its activities for the duration of the present war, but the majority seem to be in favor of having a meeting. Those members of the association who care to voice their opinion may do so by writing the secretary and are certainly welcome to do so. As voted on at the last meeting, Albuquerque has been chosen as the meeting place for this year.

It is worthwhile to mention periodically that Southwestern Medicine is glad to receive for publication papers written by members of the Southwestern Medical Association. Contributions from doctors belonging to the Southwestern Medical Association have been excellent recently, and it is hoped that the good work will keep up.

Besides the many doctors who have been called to the Army and Navy, who live in the bigger cities in the Southwest, a great many have been called for rural communities so that our roster has been appreciably diminished. We are certainly all proud of our men who have gone to the service and want to offer them our heartiest best wishes. The associate editor of Southwestern Medicine from the Southwestern Medical Association would greatly appreciate it if members of the association and readers of this Journal would drop him a line concerning items of interest about members of the Association. There is no definite new gathering agency for the Association and we depend on hearing from the members themselves. Items concerning members in or out of the service will be very much welcome.

Louis W. Breck, M. D., Secretary.

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

The Secretary has the following communication, dated April 17, 1942, from Dr. John D. Clark, president of The Basic Science Board:

Dr. L. B. Cohenour
First National Bank Building
Albuquerque, New Mexico.

Dear Dr. Cohenour:

The Basic Science Board has been issuing certificates of registration to those who were licensed to practice a healing art in New Mexico before July 18, 1941, but it hasn't, as yet, issued certificates to many doctors of medicine.

In my judgment, word probably has not reached many doctors that these certificates are available to them if they send 25c (stamps will do) to our secretary at Santa Fe. We had to charge the 25c because it costs this for postage to send the certificates around the circuit for signatures.

It occurred to me that this might be a suitable item for publication in *Southwestern Medicine*.

A great many doctors have been spoken to, and without exception all of them feel that if they secure this certificate of registration, the same being registered in Santa Fe, that in the future it will be impossible ever to raise the question of their compliance with the Basic Science Law.

Sincerely yours,
JOHN D. CLARK, President,
Basic Science Board.

Correspondence should be addressed to Pia Maria Joerger, Office of Secretary of State, Santa Fe.

The regular meeting of the McKinley County Medical Society was held on Wednesday evening, March 25, 1942, at St. Mary's Hospital, Gallup, New Mexico. A group of about twenty were present, including members of the local medical society, several doctors from the Indian Service Hospitals and representatives of the State Health Department, Santa Fe, New Mexico.

Due to the special program, the regular business meeting was dispensed with. Dr. Stewart W. Adler, State Director of Maternal and Child Health, spoke regarding the immunization of children, of pre-school age, as advised by the President of the United States, to forestall an epidemic during war time.

It was proposed to begin a "Summer Roundup" of medical examinations in this community with the cooperation of the local health department and members of the Parent-Teachers' Association.

A committee was appointed, from the local medical society, to meet with Dr. E. B. Beaver, Health Officer for McKinley and San Juan Counties, to discuss the best means of procedure, and later a special meeting of the other members of the Society will be called to definitely organize this program.

Two colored films, with sound attachment, were shown in connection with Public Health work. First, a film titled, "Another to Conquer," in reference to the control of Tuberculosis on the Indian Reservations; and second, "When Bobby goes to School," illustrating the importance of pre-school examinations. The latter picture is to be shown to the general public as approved by members of McKinley County Medical Society.

Dr. E. F. McIntyre, State Director of Venereal Disease Control, then directed the presentation of three reels of technicolor films on "Syphilis, its Diagnosis and Management," and another film, also on this subject, titled, "Know for Sure," as sponsored by the New Mexico Public Health Department.

A vote of thanks was given to Drs. Adler and McIntyre for the splendid program presented.

Drs. D. F. Monaco and W. D. Anthony of Gallup left by plane from Albuquerque to attend the four-day session of the Dallas Southern Clinical Conference in Dallas Texas, and also postgraduate lectures at Baylor University.

W. D. Anthony, M. D., Secretary.

COMMUNICATIONS

Sir:

I am enclosing a brief notice which I hope is suitable for the May issue in the *Southwestern Medicine*. The program appears in more detail in the May, 1942 issue of "Diseases of the Chest", copy of which is enclosed. Would you be kind enough to return this to me to be re-entered in my journal? There are enough outstanding men on this program so it should be quite a valuable one to those interested in chest diseases, and I know quite a number of men in the Southwest are.

Thanking you for your courtesy, I am

Very truly yours,

CHARLES S. KIBLER, M. D.

(The notice follows.—Ed.)

CHEST PHYSICIANS MEET

For physicians interested in pulmonary diseases, there is an opportunity to attend a worth while meeting while attending the annual American Medical Convention. The American College of Chest Physicians has arranged their meeting to be held at Hotel Dennis, June 6-8, at Atlantic City. Speakers on the regular scientific program include Dr. Joseph Peabody, Washington, D. C., Dr. Ralph Matson, Seattle, Dr. Louis Clerf and Dr. C. J. Bueher, Philadelphia, Dr. Paul Holinger, Chicago, Dr. Richard Overholt, Boston, Dr. Herman Kretschmer, Chicago, Dr. O. Auerbach, New York, Dr. William Peterson, Chicago, Dr. Frank W. Burge, Philadelphia, Dr. Chevalier Jackson, Philadelphia, and Dr. Hans Schiffbauer, Los Angeles. This meeting includes a joint session with the American Broncho-Esophagological Association. Further details of this meeting appear in the May, 1942 issue of "Diseases of the Chest."

Sir:

Would you kindly publish the following information in the next issue of your magazine:

"The Western Branch of the American Urological Association will hold its annual convention this year at Hotel Del Monte, California, from June 22 to June 24."

Very sincerely yours,

MILES GRIFFIN,

Publicity Committee.

AUXILIARY NEWS

MARICOPA COUNTY

Two social events have been given by the Maricopa County Medical Auxiliary.

The first was a potluck luncheon on Wednesday, May 6, in the home of Dr. and Mrs. George Irvine, Tempe, Arizona. Officers for the year 1942 and 1943 were elected. They are: President, Mrs. James R. Moore; First Vice-President, Mrs. Paul Case; Second Vice-President, Mrs. Louis Jekel; Secretary and Treasurer, Mrs. R. W. Hussong.

Mrs. Harlan P. Mills, President-Elect, of the Women's Auxiliary to the Arizona Medical Association, gave a brief talk and suggestions for the Auxiliary activity for the coming year.

The closing social event of the year was the usual picnic at the Hide-Out in South Mount Park Saturday night, May 9.

We urge all of the members to work this summer in the Surgical Dressing Department. We have made 27,000 dressings in the last three months in our Auxiliary Room in the Grunow Clinic, and it will be open during the summer every Tuesday and Friday from 10 a. m. to 3 p. m.

Mrs. Thomas A. Hartgraves,
County Publicity Chairman.

LAST CALL for reservations for the Twentieth Annual Convention of the Woman's Auxiliary to the American Medical Association, which will be held at Haddon Hall, Atlantic City, New Jersey, June 8-12, 1942. Atlantic City extends a hearty welcome to you.

SUMMER DIARRHEA IN BABIES

Casec (calcium caseinate), which is almost wholly a combination of protein and calcium, offers a quickly effective method of treating all types of diarrhea, both in bottle-fed and breast-fed infants. For the former, the carbohydrate is temporarily omitted from the 24-hour formula and replaced with 8 level tablespoons of Casec. Within a day or two the diarrhea will usually be arrested, and carbohydrate in the form of Dextri-Maltose may safely be added to the formula and the Casec gradually eliminated. Three to six teaspoonfuls of a thin paste of Casec and water, given before each nursing, is well indicated for loose stools in breast-fed babies. Please send for samples to Mead Johnson & Company, Evansville, Indiana.

MISCELLANY

CLASSIFICATION OF ANEMIAS

1. Decreased production anemias.

A. Decreased hemoglobin synthesis (characterized by small red cells) due to deficiency of:

1. Iron, copper and manganese—chlorosis, idiopathic hypochromic, chronic blood loss (iron loss).
2. Protein—nutritional.
3. Thyroid—hypothyroid anemia.
4. Vitamin C—anemia of scurvy.

B. Decreased maturation of early nucleated red cell forms at megaloblast level (characterized by large red cells due to:

1. Deficient intake of extrinsic factor—pellagra, beri-beri, tropical anemia of pregnancy.
2. Deficient production of intrinsic factor (gastric mucosa)—pernicious anemia, carcinoma of stomach, gastric operations.
3. Deficient absorption or storage—sprue, intestinal parasites, idiopathic steatorrhea, cirrhosis of liver.

C. Aplastic group—due to maturation arrest of all the cells (usually normal sized cells) caused by:

1. Chemical agents—arsenic and benzene intoxication.
2. Physical agents—radium poisoning.
3. Idiopathic.
4. Chronic infections.

D. Miscellaneous causes—due to actual encroachment of the bone marrow by:

1. Abnormal cells—leukemias, malignancies, Hodgkin's disease.
2. Abnormal storage by normal cells—lipoid histiocytosis (Neiman-Pick's disease, Gaucher's disease, Hand-Schuller-Christian syndrome).
3. Replacement by bone and fibrous tissue—osteosclerosis.

2. Increased destruction anemias.

A. Increased destruction associated with hemolysin in plasma or abnormal cell structure:

1. "Familial" hemolytic anemia—usually associated with increased fragility and sphericity of red cells.
2. Sickle cell anemia.

B. Increased destruction due to infection:

1. Malaria.
2. Gas bacillus infection *(B. Welchi)*.
3. Hemolytic streptococcus infection.
4. Oroyo fever.

C. Increased destruction due to chemical and biological agents:

1. Sulfanilamide and related compounds.
2. Snake venoms.
3. Acute lead poisoning.
4. Incompatible blood sera.
5. Favism (allergic).

D. Acute and subacute blood loss.

Some minor deviations from the classifications above may be noted. For instance, the anemia of scurvy may show little or no change in cell dimensions. In macrocytic anemias due to deficiency of the extrinsic factor, there is a relatively smaller increase in the size of red blood cells. The anemia of cirrhosis of the liver is peculiar in that the red cells are relatively thinner than normal.—*Tri-State M. J.*

BUTTER

Most recent research has revealed a new factor in butter, as yet unnamed. The substance has never been isolated, and although work is now going ahead rapidly on it, all that is yet known is that young animals grow much better when supplied with it than when fed only vitamins A and D and supplementary fats of a non-dairy origin.

The digestibility of butter is uniformly good. All fats with a low melting point are easy to digest, and butter is in this class of fats, ranking second only to fish liver oils in ease of digestion and completeness of utilization. Besides, butter on digestion yields fatty acids of low molecular weight, which play an important role in the process of metabolism.

About two ounces of good butter daily will supply the vitamin A requirements of an average child, and two to three ounces of butter with a pint of whole milk daily will be quite adequate for an adult's vitamin A requirements. Butter is not to be depended upon alone for an adequate supply of vitamin D, although its value as an accessory source of vitamin D is very important. Just what amount of the newly discovered "butterfat growth factor" is required for normal growth, and to what degree butter is adequate in supplying it, have not been established. However, research indicates that butter may prove adequate to supply man's requirements of this substance.

The importance of the nutritional value of butter was not always as fully recognized as it is today. Scientists had known for years that fats are needed for human growth, but until the early part of this century, when E. V. McCollum made his first studies at the University of Wisconsin, little else was known, and no attempt had been made to determine which fats are needed and why.—*Wisc. Med. J.*

DILANTIN SODIUM IN ASTHMA

Because of recent work on the psychogenic aspect of bronchial asthma and the concept of the so-called "asthmatic personality," a search was made for a drug that would have a psychosomatic effect on children with bronchial asthma. Recent work with Dilantin Sodium and its application in the treatment of epilepsy have amply proved this to be a powerful and efficient anticonvulsant. The infrequency of toxic effects, in addition to its reported effect of improvement in the epileptic personality, marked the drug as one worthy of trial in cases of bronchial asthma.

Seven cases of intractable, severe bronchial asthma were selected for treatment with Dilantin Sodium. These cases were skin tested and were found to be sensitive to many different allergens. The ages of the patients ranged from three to fourteen years. The sex factor was not controlled, although in this series there were 4 boys and 3 girls. The patients received Dilantin Sodium for periods varying from five months to one year, although several were studied for a far greater length of time.

The dosage of Dilantin Sodium was determined for each patient by "self-titration" methods. When adequate dosage was maintained, 6 patients remained consistently free from attacks of bronchial asthma. Two patients reported abortive attacks, consisting of slight wheezing, which passed off rapidly. In only 1 case did toxic symptoms result from the ingestion of the drug. In this case, the toxic symptoms cleared rapidly on withdrawal of the drug, and the patient was able to resume treatment with a slightly smaller dose.

In 2 cases complicated by seasonal allergies, nasal and ocular symptoms of the allergy occurred and could not be controlled with Dilantin Sodium.

During the administration of the drug, there were no change in environment and no dietary restriction. During this period, some of the patients suffered acute upper respiratory infections, with no resulting bronchial asthma, in sharp contrast with the previous history of these patients. To test the efficacy of Dilantin Sodium in controlling asthmatic attacks brought on by emotional upsets, many patients were encouraged to enter situations and environments that formerly precipitated attacks of bronchial asthma. With this drug as the sole medication, the patients were consistently free of attacks of bronchial asthma, and they were able to engage normally in athletic and social activities. In the 1 case in this series in which complete success was not obtained, the lack of parental co-operation and understanding was an important factor.—*N. E. J. of Med.*

TINTED LENSES

The use of tinted glasses has increased to such an extent lately that one might be led to believe most people fear their eyes need protection even against good daylight, hence the too general use of sun glasses. Advertisers of variously colored glasses have made every conceivable claim for their products. One can understand how the layman may be led to believe in the miraculous benefits claimed for the use of such glasses, but even ophthalmologists are being duped.

Tinted lenses are essentially protective glasses. Except in certain abnormal conditions in which it is necessary to protect the eyes from ordinary light, they are useful only in the presence of glare—direct or reflected light which is so excessive or misdirected that it is painful or harmful to the eyes. Ordinary sunlight, unless reflected directly into the eyes, is not harmful to healthy, properly corrected eyes. So-called sun glasses should be made to serve one purpose and that is to reduce the amount of direct or reflected light on those occasions when the intensity is so great that it is painful or interferes with vision. They are not to be used constantly out of doors. To serve the purpose of sun glasses they must be dark enough to absorb about 75 per cent of the light. The lightly tinted ones are no better than ordinary clear glass. No tinted glass should be worn indoors, certainly never at night. They are dangerous for night driving. The glare of an automobile headlight is due to the contrast with the surrounding darkness and dark glasses cannot change that; they will dim the headlight, but they also make the surroundings darker. The sense of eye fatigue after day driving is more often due to uncorrected or improperly corrected errors of refraction than to the bright light. It is certain that sun glasses cannot be used as substitutes for corrective lenses in the case of a refractive error.—*J. M. S. M. S.*

PHYSICIANS' ALOOFNESS IN THE NATIONAL THOUGHT OF TODAY

And the doctors? What have we been doing to strengthen democratic thought? What part are we playing in public affairs? What sacrifices are we making for the betterment of our political institutions that this land become a better place for all men, high and low, to live in? What sacrifices are we making, as did our early Doctor-Politician-Statesmen and our early fighting Doctor-Parsons?

Individually we are practicing scientific medicine, making our daily call; serving, *when invited*, on a hospital or health board committee. But, and this is more important, we have failed to assume responsibility for public policies that are fundamentally medical; we have failed to discuss systematic plans in our county and state medical society meetings for the care of the indigent sick; although we do all the work for them without any compensation in our hospitals, both semi-private and charitable.

And what has our national medical organization been doing? Since we have the largest medical organization in the world—the American Medical Association—composed of 125,000 American doctors, it should be the leader in all policies pertaining to the health of our people. And I am of the opinion that under its leadership machinery should be devised to make the benefits of scientific advances in medicine available to all those whose financial circumstances do not permit of adequate medical services, as well as to the well-to-do.

Instead what has happened? After being adjudged guilty of "violation of the law in restraint of trade" in a Federal Court, the American Medical Association announces: "We are not a political body. We have nothing to do with politics," and this without the assent of the

House of Delegates of the A. M. A. Think of the effect of such a do-nothing policy on the American reading public after the A. M. A.'s court record!

Why this evasion of our manifest responsibility? Because (a) the attention of the medical profession as a whole has been directed to the scientific aspects of disease and to the application of this knowledge to the particular patients whom we are treating. For the county and state medical societies are organized almost entirely for scientific purposes. And because (b) participation in political thought by any doctor has been discouraged and his activities have actually been suppressed by the press of Organized Medicine. If he dares to question that the medical care of the indigent can be improved, he is silenced by the statement that—"American medicine is the best in the world," or "a doctor should have nothing to do with politics." They confused politics with partizanship.

The result of this abandonment of public affairs by educated men—including physicians—is illustrated by what happened in Austria.—*J. Med. Soc. N. J.*

INTRA-BONE MARROW INFUSION

A new route for the administration of fluids, namely, by way of the bone marrow, has become available through the recent work of Tocantins and O'Neill (Surg., Gynec. and Obst. 73:281, Sept. 1941). For the detailed account of the procedure the original article must be consulted, but a general description of the method is as follows:

A special needle, fitted with an inner needle and a stylet is inserted into the marrow cavity of a bone. The manubrium, or the body of the sternum, is best suited except in the case of small infants. In the latter, one of the long bones, preferably the humerus, tibia or femur should be selected. After entering the marrow cavity, a small amount of blood-marrow mixture (0.1 cc.) is withdrawn. Sterile saline solution should then be alternately injected and aspirated until all the air is displaced by the fluid. The inner needle is then removed and the outer needle connected by means of an adapter and rubber tubing to the buret containing the infusion fluid. The solution is allowed to flow in by gravity, and the rate may vary from 0.4 to 25 cc. per minute.

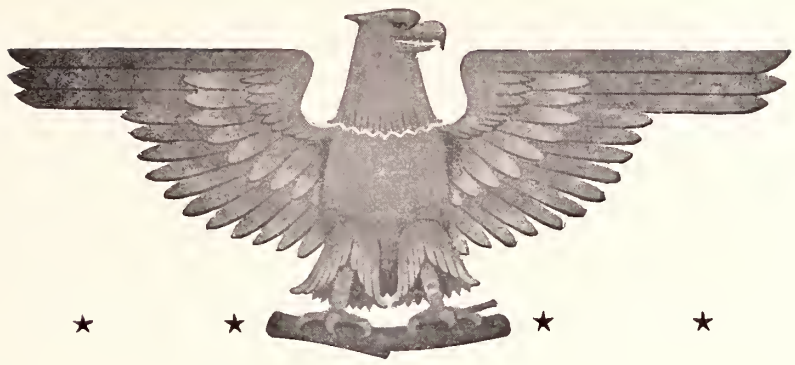
Bone marrow infusion is essentially the same as the intravenous injection since the absorption into the general circulation is exceedingly rapid and direct. It is therefore the methtod of choice when veins are difficult to find or to enter. The relative immobility of the needle inserted into a bone has the advantage that fluids can be given to restless patients or in emergency conditions such as in an ambulance, in which the maintenance of a needle in a vein would not be feasible or perhaps possible.

It is obvious that no irritating or hypertonic solution should be given via the bone marrow. At the present stage of development, it seems best to limit the list of fluids to be administered by this route to citrated blood, citrated plasma, serum, 5 per cent glucose, and physiological salt solution. It is logical to conclude that blood given by the intramedulary route is of greater and more prompt benefit than when injected intraperitoneally, especially since absorption is greatly depressed in certain disorders of the gastrointestinal tract. Parenthetically it might be stated that the value of blood injected intramuscularly is of doubtful value under any circumstance. Large amounts of saline (as much as 2,000 cc.) have been given successfully in shock when general vascular collapse made intravenous administration exceedingly difficult.

There appear few contraindications for marrow infusion. It should not be used in generalized infection accompanied by bacteremia, since a suppurating process may localize at the site of the injection in the marrow cavity.

In Tocantins' hands the method has been highly successful. In forty patients on whom marrow infusion was carried out, no local or systemic reactions were noted. The author at the outset was aware of the danger of fat emboli from the marrow fat, but points out that the untoward complication is very remote. In none of his patients was there evidence that any significant amount of marrow substance got into the blood stream. The injection of fluid into the marrow causes no demonstrable local damage, and the patient suffers discomfort either during or after the infusion.

The method of marrow infusion is still too new to be fully evaluated, but its potential usefulness should be recognized. Whenever intravenous medication is indicated, but difficulties arise in utilizing this route of administration, the new method via the bone marrow



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should be considered. It is to be emphasized that the method is not intended to replace intravenous administration, but is a welcome alternative procedure when conditions make the latter difficult or well nigh impossible.—*Wisc. Med. Jo.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

NEUROANATOMY, by Fred A. Mettler, A.M., M.D., Ph.D. Professor of Anatomy, University of Georgia School of Medicine, Augusta, Georgia. With 337 Illustrations, including 30 in color. The C. V. Mosby Co., St. Louis, Mo. 1942. $7.50.

This textbook for medical students consists of two main parts. Part one covers the gross aspects of the neural system and covers 179 pages. Part two covers the microscopic anatomy of the neural system and takes up the remainder of the 385 pages of text. The discussion of the gross anatomy lays a firm groundwork for the remaining consideration of the microscopical features. The text is well adapted for students in that all new terms are carefully defined as they are encountered, and the sometimes confusing terminology of neuroanatomy is kept clarified by the use of alternate terms in parenthesis following the term of the author's choice.

The style is clear and concise and the book is profusely illustrated with excellent drawings and charts. Not the least valuable feature of the book, for advanced students, is the 53 pages at the end of the volume devoted to a list of selected references. These, in the main, are from the American literature, although outstanding articles from the foreign literature are also included. The reviewer's impression is definitely that of a sound readable text.—*L. O. Dutton.*

THE TOXEMIAS OF PREGNANCY, by William J. Dieckmann, M. D., Associate Professor of Obstetrics and Gynecology, The University of Chicago; Attending Obstetrician, The Chicago Lying-in Hospital and Dispensary; Attending Gynecologist, Albert Merritt Billings Memorial Hospital of the University of Chicago; Associate Editor of the American Journal of Obstetrics and Gynecology; Co-chairman of the Conference on Eclampsia, United States Department of Labor, Children's Bureau, 1941. With 50 text illustrations and 3 color plates. The C. V. Mosby Co., St. Louis, Mo. Price $7.50.

This extremely well documented volume is an important contribution well worth perusal by all interested in this field, not only those whose practical interest lies in the management of the pregnant woman, but also those students of physiology whose interest carries them into the pathological aspects of this subject. The author states that he wishes to acquaint the obstetri-

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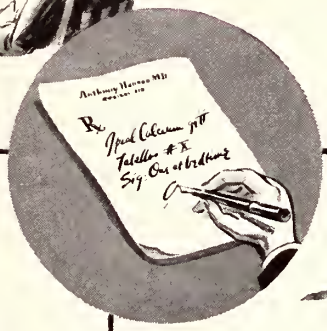

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cian with some of the recent contributions on physiology pertaining to obstetrics and to acquaint the investigator untrained in obstetrics with some of the physiology and pathology of obstetrics. He has ably achieved these aims.

The volume is divided into sections dealing with the classification, incidence and pathology of the toxemias of pregnancy—the normal and abnormal physiology, the etiology of eclampsia, the clinical aspects of the toxemias of pregnancy, the treatment of the toxemias of pregnancy, the maternal and fetal prognosis and prenatal care. Each section presents not only the views of the author, but well-summarized opinions from other important investigators in the field. Each section is followed by a full bibliography so that this volume could well serve as a nucleus for an extensive study in this field.

In the realm of pathological physiology great attention is paid to pathology of eclampsia, the application of physiochemical determinations, the study of eclampsia, the place of the vascular system in eclampsia, and the physiology and pathology of the kidneys and liver. There is a carefully presented section on pharmacodynamics of the important drugs used in the treatment of eclampsia, and the practical steps in the management of these patients are precisely outlined with sufficient background so that the use of these measures can be intelligently supervised.

The make-up and type of this volume are pleasing and it can be highly recommended. There are 521 pages.—*L. O. Dutton.*

A MANUAL OF PHARMACOLOGY, by Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. W. B. Saunders Co. 1942. PPrice $8.75.

This sixth edition of Sollmann's well-known manual should be a valuable addition to the library of any thoughtful practitioner. Although designated as a sixth edition, the volume has been practically re-written, bringing up to date the many recent significant advances in this field. The arrangement of the text is concise and helpful, in that basic discussion of each subject is presented in ordinary type, while sections of smaller type, often quite voluminous, discuss the more detailed features which one would consult only for some special purpose. No effort has been made to describe all preparations of

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TEXTBOOK OF SURGERY (Third Edition), by American authors. Edited by Frederick Christopher, B.S., M.D., F.A.C.S., Professor of Surgery, Northwestern University Medical School, chief surgeon Evanston (Illinois) Hospital. 1764 pages with 1538 illustrations on 771 figures. W. B. Saunders Company, Philadelphia. Price $10.

All that was written by this writer in praise of the second edition can be said of Christopher's Third Edition. Its list of contributors reads like a roll call of the great and near-great in American Surgery. It encloses in one volume the essential facts on most surgical subjects. The book has been revised and brought up to date. A new section on (1) gastric ulcer appears, also a new treatise on (2) anal pruritus and hemorrhoids. Other new sections are those covering (3) abnormalities of the thymus, (4) compound fractures (5) coccidoidal granuloma, and (6) treatment of patent ducts arteriosus. A timely chapter on (7) war injuries has been added.

In discussion of surgical procedures, attention is given to other techniques than the one preferred by the author, thus giving a more comprehensive view of the subject. For instance, under treatment of hernia, both transplantation and non-transplantation of the cord are described.

Most outstanding recent advances in surgery have been in treatment with sulfonamide drugs. Various authors have included in the revised edition discussion of use of chemotherapy and results to be expected. While primarily intended for students, this book is highly recommended as a valuable reference work for every surgeon's library.—*J. Leighton Green.*

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METHODS OF TREATMENT IN POST-ENCEPHALITIC PARKINSONISM, by Henry D. von Witzleben. Grune and Stratton, New York, 1942; pp. 164; $2.75.

One hundred and sixty-four printed pages, devoted exclusively to one disease entity, have provided the author with ample scope for complete discussion. An introduction by Dr. Theodore J. C. von Storch relates something of the author's background and experience, to provide the basis for an authoritative work.

The opening chapter is devoted to precise definition of the disease entity under discussion, and to differential diagnosis. Post-encephalitic Parkinsonism is described as "not a sequela or a meta-disease of acute epidemic encephalitis", but as "a form of chronic epidemic encephalitis typified by very characteristic signs", which "must be differentiated from all other forms of Parkinsonism, particularly from paralysis agitans, which is the original Parkinson's disease." Differentiating signs, symptoms, and methods are given detailed consideration.

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surgery, fever therapy, Roentgen ray therapy, general medicaments, alkaloids, and treatment by physical exercises and calisthenics. It appears that the author has little confidence in any of these methods except one specific aspect of alkaloid treatment—now known as the Bulgarian treatment—aided and abetted by controlled exercises. The new technic for application of the Bulgarian treatment (consisting essentially of the administration of "a total extract from the roots of Atropa belladonna") is described with meticulous detail, but without prejudice. The author's own methods and results are emphasized, but other methods are not neglected.

The author says that "no single compilation of the literature on therapy has yet been made. It has therefore been necessary to resort, painstakingly, to the original articles, in order to evaluate the various therapies recommended for the disease." The bibliography includes twenty-four pages of references. Altogether, this book should prove of value to any one interested in the symptomatology, diagnosis, and treatment of post-encephalitic Parkinsonism.—*R. L. Larson.*

THE PSYCHOLOGY OF DEALING WITH PEOPLE—Serving the Need of a Feeling of Personal Worth, by Wendell White, Ph.D., University of Minnesota; Author of the Psychology of Making Life Interesting. New edition, completely revised and reset; New York, The MacMillan Company, 1941. $2.50.

The title of the book portrays nicely the contents of the book; the contents are thoroughly practical for most persons if not for all. Who is there of us who does not need to improve his dealing with his fellows?

Of course, one reading or even a memorizing of the entire text can not make some of us into the diplomats we'd like to be, but a careful study of it might do a lot.

There are 267 pages divided into four parts and 20 chapters; each paragraph or several paragraphs has a subheading which makes for impressive reading and easy learning. The type is excellent.

Every physician can profit from reading this and he can safely recommend it to his patients.

O. H. Brown.

MAN—THE MECHANICAL MISFIT, by G. H. Estabrooks; The MacMillan Company, New York, 1941. $2.50.

This is a highly thought-provoking book. It should have a general reading.

The author's thesis is that nature has been

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Nature is now experimenting with man. Fighting man are bacteria, viruses and other disease producing elements. The medical profession—friendly enemies, he calls us—is preventing the diseases from eliminating the weaklings. The better stock among the humans is practicing birth-control; the feeble-minded and less-intellectuals generally are over-populating the earth. Wars take only the most fit. We persist in having wars. The number of insane and incompetents are definitely on the increase. Hence in time—hundreds of thousands of years perhaps—the highest type of human as we know him today is certain to be eliminated and nature has to begin her experiments over again.

What is to follow the human race of today he does not predict.

The book is most readable. It is entertaining with a world of facts about evolution, civilization and medical history which will interest practically everyone. One who starts the reading of it will find it difficult to lay down until finished.—*O. H. Brown.*

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Malcolm Galbraith, vice-president and director of sales of the Upjohn Company, died Friday morning, April 10, in Kansas City.

Mr. Galbraith was born in Bowmanville, Ontario, Canada, October 23, 1876. He received his bachelor of pharmacy degree at Ontario College of Pharmacy in 1898, entering in the drug business in Ontario the same year. He later became a naturalized citizen of the United States. In 1909 he left the H. K. Mulford Company of Philadelphia to join the Upjohn Company. In October, 1929, he was elected to the board of directors and named director of sales. He was made vice-president of the company in May, 1936.

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and hospital staffs. One deals with thiamine chloride deficiency one with nicotine acid deficiency, and the third with ariboflavinosis. The major part of all films concerns the clinical picture presented by the patient with reference to treatment by diet and specific medication. They do not contain advertising of any description, nor is the name of Eli Lilly and Company mentioned.

The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a cooperative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

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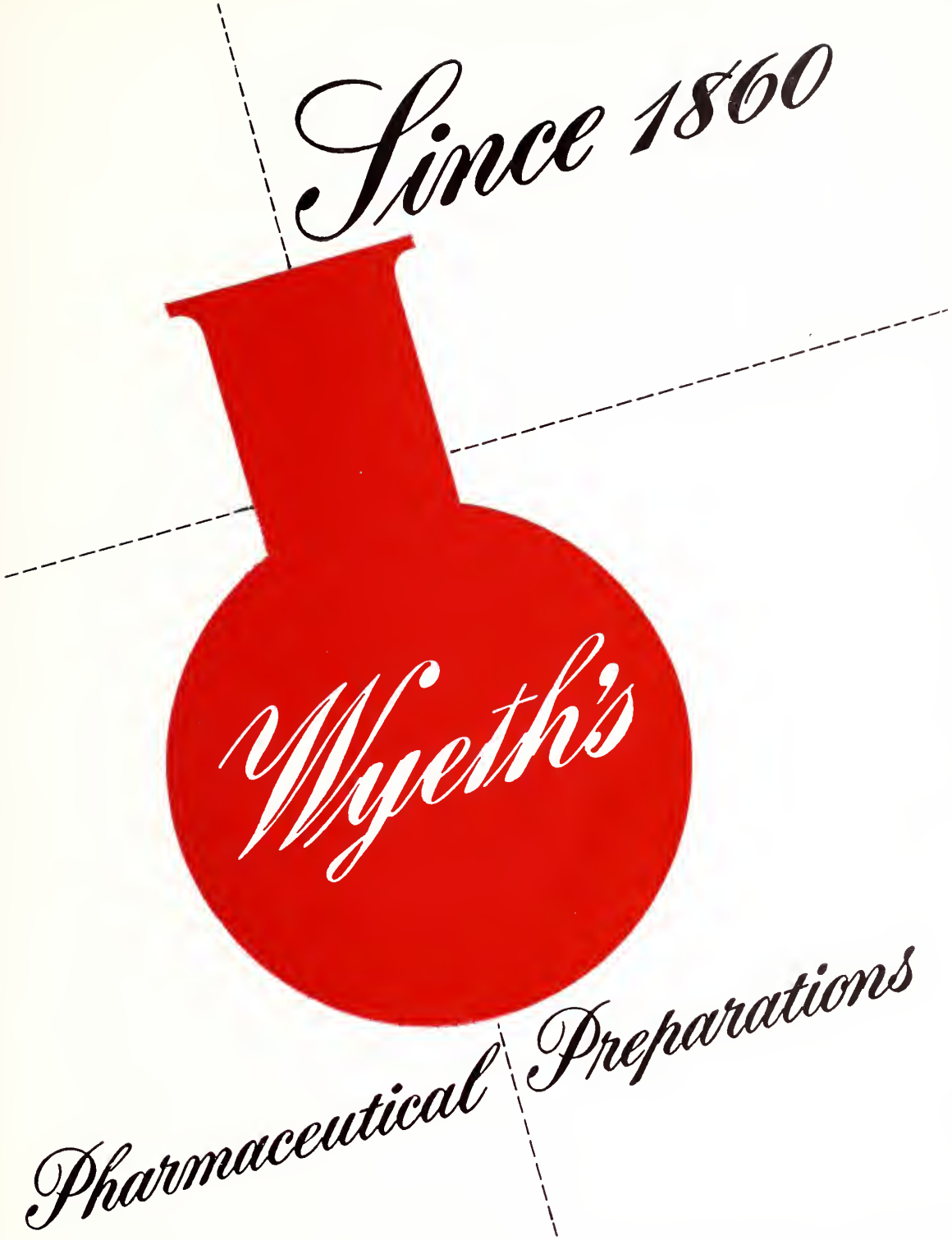

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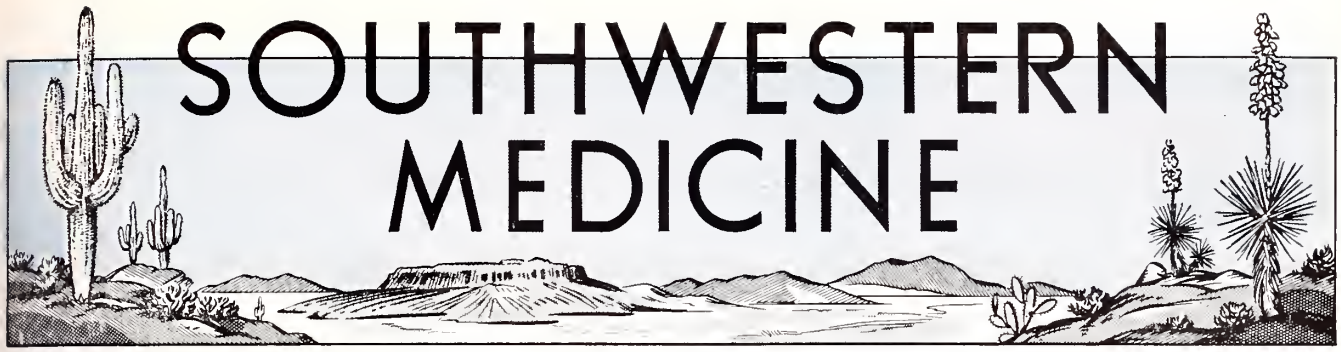

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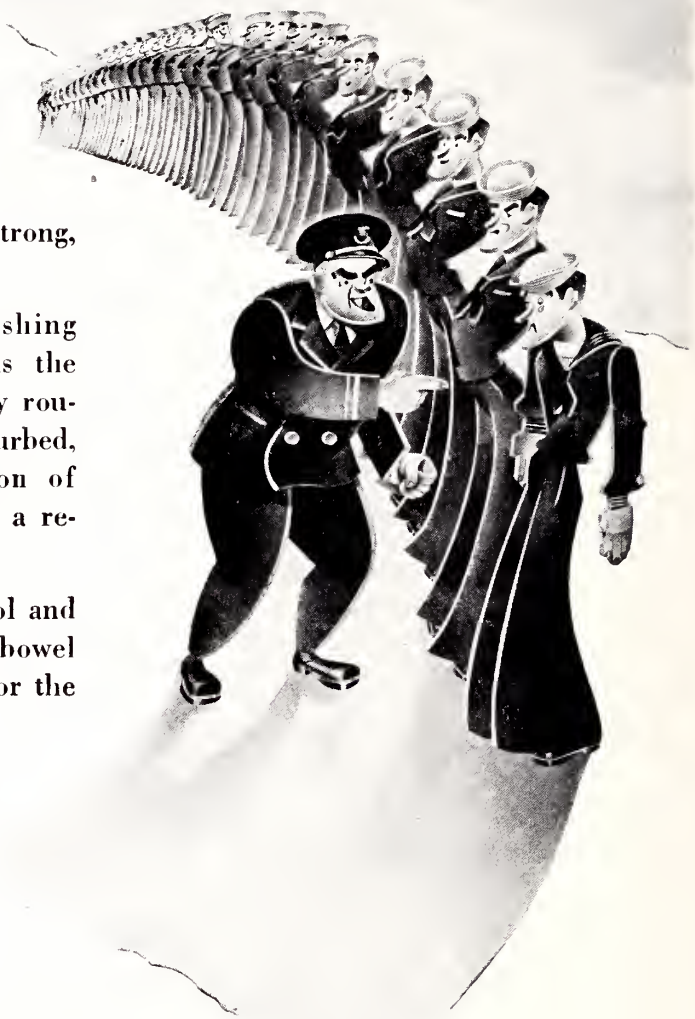

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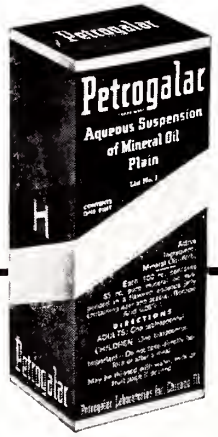

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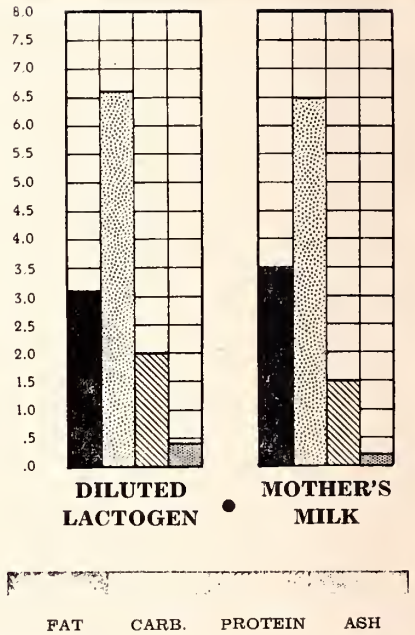
John Lovett Morse, A.M., M.D.
Clinical Pediatrics, p. 156



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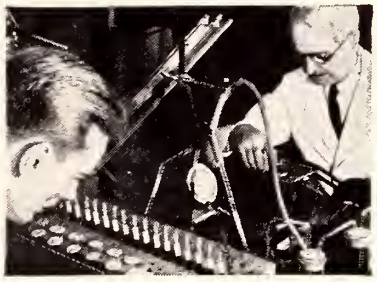

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***The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*

****J.A.M.A., 93:1110—October 12, 1929*
Brückner, H.—Die Biochemie des Tabaks, 1936

REPRINT AVAILABLE of an important contribution to the medical literature on smoking—"The Cigarette, The Soldier, and The Physician," *The Military Surgeon,* July, 1941. There are many new angles on smoking experience revealed in this analysis—an aid to you when modifying patients' smoking without disturbing their smoking enjoyment. Write to Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York City.

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Are the Neuritic Symptoms of Pregnancy *due to a deficiency of vitamin B_1 (thiamine)?*

SUCH common neuritic symptoms of pregnancy as pains in arms and legs, muscle weakness, and (less frequent but more serious) paralysis of the extremities may result from a shortage of antineuritic vitamins, recent investigations appear to show. Although neuronitis of pregnancy has long been considered a toxemia, no toxins have ever been identified.

Clinical observations of Strauss and McDonald lead to the conclusion that the condition is a dietary deficiency disorder similar to beriberi, caused by lack of vitamin B_1. They report recovery in their cases receiving this therapy, including dried brewers' yeast.

Hyperemesis as Cause of Avitaminosis

Wechsler observes that all cases of polyneuritis of pregnancy recorded in the literature were preceded by long periods of severe vomiting. "It would seem," he adds, "that because of actual starvation these patients suffered from avitaminosis and consequent neuritis," a view likewise held by Hirst, Luikart, and Gustafson. Plass and Mengert observe that the practice of giving high carbohydrate feedings for hyperemesis gravidarum is still more likely to cause avitaminosis.

Dried brewers' yeast, as it is far richer than any other food in vitamin B_1 (thiamine), is being used with benefit both in the prevention and treatment of polyneuritic symptoms of pregnancy. Lewy found that additions of yeast to the diet reduced electric irritability of the peripheral nerves and brought clinical improvement. Vorhaus states that he and his associates, after administering large amounts of vitamin B_1 (thiamine) to 250 patients having various types of neuritis, including that of pregnancy, observed in about 90% of cases "varying degrees of improvement, i.e., from partial relief of pain to complete disappearance of all symptoms."

Need for Vitamin B_1 (thiamine) in Lactation

Evans and Burr, Hartwell, Sure and co-workers, and Macy *et al* are among numerous authorities who find that the nursing mother also needs a supplement of vitamin B_1 (thiamine) from 3 to 5 times the normal requirement. It is accepted that during pregnancy and lactation the requirement for vitamin G (riboflavin) is increased.

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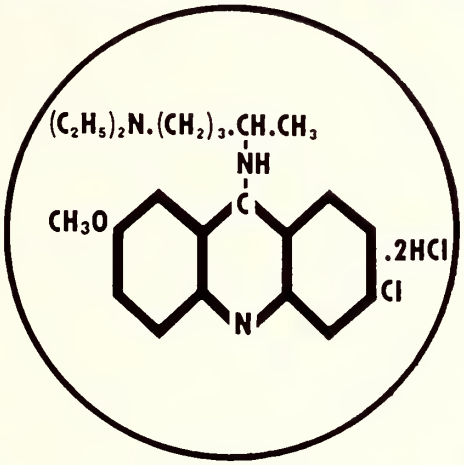

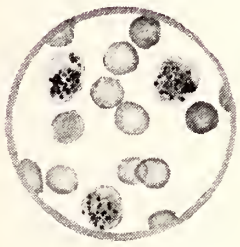

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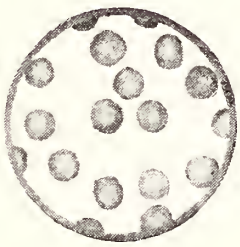

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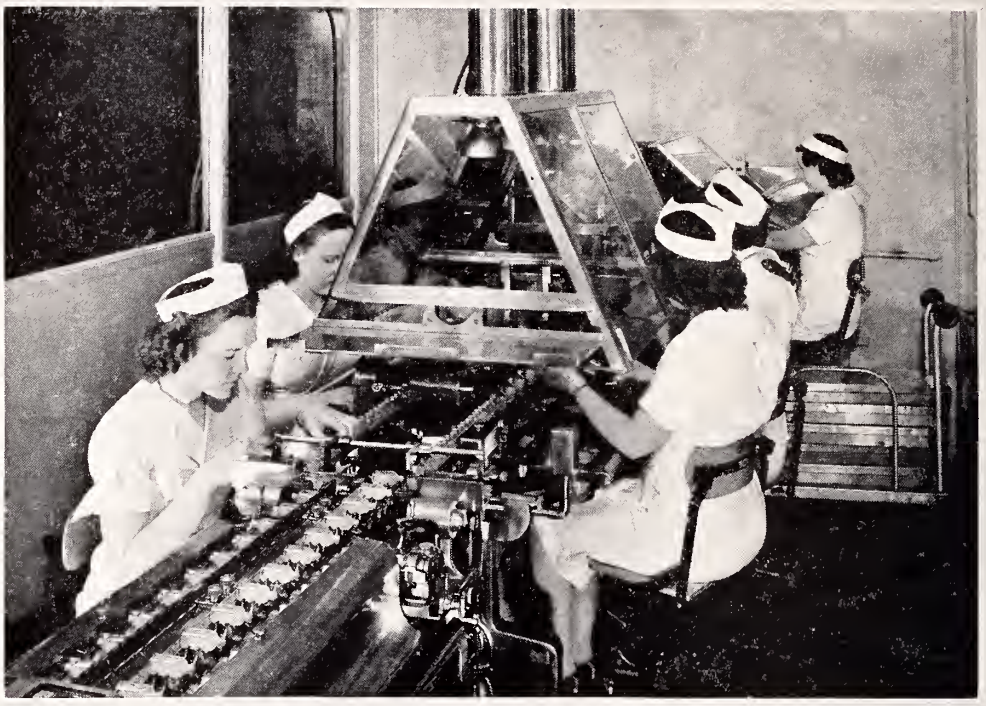

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SOUTHWESTERN MEDICINE

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THIRTY PIECES OF SILVER

There are certain physicians in this land of ours who have made no move on their own initiative to get into the service of the United States of Ameriea. Some of these men could qualify for duty with the armed serviees, others would be useful in eivilian assignments. The point is that it befalls American Medicine to volunteer to a man for service of some sort in this total peril our country now is faeing.

Lest this writer be adjudged a common seold, and alone in his playing of this tune, read the following from the *Journal* of the Medical Society of New Jersey:

Some doctors have been reluctant to enroll with the Procurement and Assignment Service. The blank was published in the January issue of this *Journal* and a form will be mailed to eaeh physieian later this month. By signing, a doctor indicates that he is available for serviee to the Government in his own braneh of medicine or surgery. It was expeeted that practieally 100 per eent of the physicians would respond to this call. Certainly it is hard to see how anyone ean do otherwise.

At least one physician has said, however, that he felt under no obligation to sign the blank because he had received no individual request to do so. Its publication in a journal, he felt, was a hit-and-miss device which could not be meant to have any personal application to him.

Another doctor said: "Why should I stick my neck out?" adding that if and when the Government wanted him it would get him without his inviting himself to be seleeted.

Perhaps the wierdest objection was this one: "No other profession in the country is expeeted to offer itself en masse in this way, no other group is being asked to dislocate itself eompletely; why should doctors be the victims of discrimination?"

Discriminated against? Is the offering of your services to your country a discrimination or a privilege? Is it to medicine's discredit or to medicine's pride that it was the first profession to offer itself? What other group now has the opportunity of securing officer's status in the Army immediately on entering from eivilian life? The answer is none. This privilege—that of entering directly into the status of an officer—is given to the medical profession and only to them.

If America loses this war, few of us will be able to practice honest medicine at all; and many will not want to survive the holocaust of a Fascist America. Of all who have a stake in democratic victory surely the intellectual, the scientist, the professional man has the largest. A physician who has to be coaxed into contributing his services to the winning of this war must indeed be troubled in conscience, narrow in vision, and mean in spirit.

WAR BONDS

This war must be paid for. Its daily cost is mounting, and will continue to do so until the victory. Those of us who must remain on the home front can be active in the battle with our dollars. For it will take dollars as well as men to beat the savage slave masters who made the error of attaeking our America. Drives for the Red Cross, the U.S.O., the Navy Relief Society ask for donations. And gladly has the physician responded. But your government doesn't ask for donations, it asks the loan of your money and offers a sound rate of interest for the use of it. You'll be glad to invest in your Ameriea, won't you? Then, Buy War Bonds!

The *Journal Lancet* says:

In this world conflict in which we are fighting for the preservation of our nation, our ideals, and our way of life, physicians and surgeons are called upon for increased professional service. Not only is this true for our members serving the armed forces. Those of us who remain on the home fronts must assume additional responsibility for the care of private and clinic patients. At the same time, we must share the obligations of all civilian forces. One important duty for us as a united people is to provide the money for the greatest war program that America has ever put into effect.

Months before Pearl Harbor, the Treasury Department initiated the Defense Savings Program. Through this, the Government sought to secure loans directly from the people to help finance our Defense Program. Now the nation is engaged in total war. We can and we must pay all of our resources into this national war effort. This means not only the service of our people and the material goods of the nation, but all our financial resources, as well. And we as individuals must carry our share of the responsibility.

We do provide a part of the money in tax payments. But a large portion of the total, we must invest voluntarily through the purchase of war securities—*United States Savings Bonds and Stamps*. These loans to the Government may be made in sums as small as 10 cents and as large as $10,000. Regardless of the denomination of our purchases, it is our obligation to buy and continue to buy to the maximum of our ability.

By investing our money in United States Bonds, we as individuals, help in the war effort; we assist in the nation's fight to curb inflation by putting our money into war securities rather than every-day goods; and at the same time, we build our own personal security.

Arizona Medicine in 1900 and Today

E. PAYNE PALMER, M. D.
Phoenix, Arizona

PREAMBLE

I AM highly appreciative of the honor you have bestowed upon me. I fail to find words to express my deep feeling. To have practiced medicine in Arizona since the beginning of the century, to have known practically all of its medical profession and many of its most prominent lay citizens who have resided here during the past forty-two years is to have enjoyed a privileged life. And, finally, to be given the highest honor that the medical profession of this state can bestow, fills me with a happiness which passeth all understanding.

We owe a deep debt of gratitude to the pioneer physicians of Arizona. They made possible the medical profession as we have it today. Prior to 1900, even in the best medical schools, training was insufficient; students memorized lectures from notes; there was little clinical instruction, no experimental training; even equipment was meager. Here in Arizona, physicians lacked hospital facilities. Many of the pioneer physicians were located in remote places; they were unable to obtain assistants or consultants when needed. Those were the horse and buggy days, days with only paths, or at best, poor roads to travel over. In town, many a physician made use of a bicycle for short distance and night calls, finding it less troublesome than hitching up his horse.

The Arizona pioneer physician was a person of indomitable courage, striving to do his duty to his patient and to uplift the medical profession. This was the type I found upon my arrival April 1, 1900. They were friendly, but they were strong competitors. I was told that medical ethics prevailed in Arizona and must be observed.

In 1900 Governor N. O. Murphy reported to the Secretary of Interior of the United States the appointment of the following Board of Medical Examiners: Dr. Winfred Wylie (Regular School) Phoenix, Dr. D. M. Purman (Regular School) Phoenix, Dr. George Goodfellow (Regular School) Tucson, Dr. W. L. Woodruff (Homeopathic School) Phoenix, and Dr. C. W. Woods (Eclectic School) Jerome. As you will note, one member of the board was a homeopath and another an eclectic. There were at this time a considerable number of homeopaths and

President's Address, at the Fifty-first Annual Meeting of the Arizona State Medical Association, held at Prescott, Arizona, May 25-29, 1942.

a few eclectics in Arizona. The regular school, of course, did not consider the other two schools of medicine worthy of recognition. By way of comparison, and with no intent of belittling any of the schools, the homeopath of that time was on a par with the osteopath of today; eclectic was on only a slightly higher plane than the chiropractor as we know him today.

On May 7, 1892, Dr. J. Miller, President of the Maricopa County Medical Association, addressed a letter to the physicians of Arizona. "It is evident that there are many earnest and jealous physicians in Arizona who are willing to contribute their time and talent towards the general interest of the medical profession. The greatest good to the profession can be accomplished through organization, therefore, be advised that a meeting of the physicians of the Territory of Arizona will be held in Phoenix, on May 25th, (Wednesday) in order that we may elect delegates to the American Medical Association which meets in Detroit June 7, 1892."

In response to the call Doctors M. M. Gilbert, Mesa; Manck, Tempe; I. B. Hamilton, Tombstone; Thomas H. Sabine, Gila Bend; H. A. Hughes, L. D. Dameron, Neil McIntyre, W H. Ward, and Ancil Martin, all of Phoenix, M. W. Braek of Tempe; and J. W. Green of Tucson, assembled in the parlors of the Commercial Hotel.

The meeting was called to order by Dr. J. Miller. A prayer was offered by the Reverend George Pearson, Phoenix, and an enthusiastic and encouraging address of welcome was extended by Governor Murphy. A temporary organization was first formed with Dr. J. Miller as chairman and Dr. Ancil Martin as secretary. Two committees were named. One on a constitution consisting of Doctors Hughes, Green, and Gilbert, and another on nominations consisting of Doctors Dameron, Hamilton, and Ward. After a recess the committees reported. With but few corrections the report of the constitutional committee was adopted, and they were discharged. The report of the nomination committee was as follows: President, Drs. Hughes and Miller; first vice-president, Dr. Hamilton; secretary, Dr. Green; treasurer, Dr. Sullivan. Dr. Miller was elected president by ballot and other nominees by acclamation; the meeting then adjourned until 10 A. M. May 26th.

The association meeting was called to order at 10:30 A. M. May 26th by President Miller. A Judicial Council as far as was possible consisting of one member from each county was appointed: Pima — Dr. Fenner; Yavapai — Dr. Pope; Yuma—Dr. Cotter; Cochise—Dr. Porter; Gila—Dr. Collins; Pinal—Dr. Sabine; Coconino —Dr. Cornish; and Maricopa—Dr. Hughes. A committee consisting of Drs. Dameron, Brack, and Martin was appointed to arrange for the next meeting; as well as a committee on publication, Drs. Green, Hamilton and Dameron, who were authorized to publish the constitution and By-Laws, in full, and an account of the meeting. Resolutions of thanks were extended to all participants. The meeting then adjourned. Following adjournment a banquet at the Commercial Hotel was given by the Maricopa Society. Members of the newly formed association and their wives, as well as many representative citizens, were present for an enjoyable evening. The social program of the first meeting of the Arizona Medical Association was a decided success.

The records show that each annual meeting was equally successful, considerable time being spent on legislative matters in an effort to improve the laws relating to the practice of medicine. Membership increased; excellent papers were presented. At a meeting held in Tucson May 17, 18, 1898, the Judicial Council recommended the following resolution: "Resolved, that it is the sense of this Association that it is a breach of the code of medical ethics of the American Medical Association for members of this Association to consult with homeopaths, under any circumstances." The resolution was passed.

1900

A factional fight which had been carried on for several years between the Hughes and Wylie followers reached its climax in 1900. Many members of the Arizona Medical Association, tired of this disturbing element at the annual meetings of the association, felt that they did not care to attend a meeting where a display of hatred was so noticeable.

The ninth annual session of the Arizona Medical Association convened in Prescott May 29, 1900. The meeting was called to order by President Win Wylie, in the office of Dr. T. B. Davis. In the absence of Secretary Otto E. Plath, Chas. H. Jones was appointed secretary pro tem. There not being a quorum present, the meeting was adjourned until the Judicial Coun-

cil could pass upon applications on file in order to admit several applicants present for participating in the proceedings.

The afternoon session was called to order by President Win Wylie; the Judicial report was received and accepted. The secretary was instructed to cast a ballot for all of the thirteen applicants. Dr. William Duffield read a paper on "Status of Our Medical Law". Dr. John W. Foss presented a paper on "Tuberculosis". Dr. Win Wylie gave a very able presidential address, and Dr. Charles H. Jones presented a paper on "Thermic Fever". The annual election of officers was carried on which resulted as follows: President, Dr. T. B. Davis, Prescott; first vice-president, Dr. John Dennett, Jr., Congress; second vice-president, Dr. A. E. Ealy, Kingman; third vice-president, Dr. Wm. Duffield, Phoenix; secretary, Dr. Charles H. Jones, Tempe; treasurer, Dr. H. W. Fenner, Tucson; essayist, Dr. Ancil Martin, Phoenix. On motion it was decided to hold the next meeting in Phoenix in May, 1901, at a date to be set by the president and secretary. An invitation was received from the citizens of Prescott to a reception and ball in the Elks' Hall in the evening, which the Association accepted. The session then adjourned. A very pleasant time was enjoyed at the Elk's Hall by all who attended, and so ended the Prescott meeting.

In 1900 Dr. J. Miller was superintendent of the Arizona Territory Insane Asylum at Phoenix, and Dr. L. N. Moller was prison physician for the Arizona Territory Prison at Yuma. At that time there was no Arizona Territory Board of Health. Under an act approved by the legislature and signed by the governor March 19, 1903, one was created April 22, 1903. Its chief function was to register births and deaths, and to control communicable diseases. Dr. R. M. Dodsworth was the first Superintendent of Health. He received $1,000.00 a year salary and $300.00 for clerical hire, office supplies, and incidental expenses. At this time there was also an act which did not permit physicians and surgeons of the territory to examine civil or criminal cases without the patient's consent.

During the summer of 1900 there was considerable discussion among Phoenix physicians as to the advisability of organizing another medical society in order to get away from professional discord. On September 1st, Drs. Ancil Martin, D. M. Purman, W. H. Ward, John W. Foss, Otto E. Plath, and E. Payne Palmer, met at the office of Dr. Foss. After considerable discussion, the Arizona Academy of Medicine was organized, with the following elected to office: Dr. Ancil Martin, President; Dr. Otto E. Plath, Vice-president; Dr. John Foss, treasurer; Dr. E. Payne Palmer, secretary. It was decided that the meetings would be held quarterly, at 8 p. m. on the first Monday of October, January, April and July, the first regular meeting to be held in Phoenix. None of the physicians involved in the factional dispute were invited to join this organization. The meetings were well attended, however, and the programs were good. The organization was a continuing success, with the membership increasing. The Maricopa County Medical Association was re-organized in 1911, and the members of the Academy of Medicine voted to discontinue the meetings so as not to interfere with the activities of the county society. Thus ended the Arizona Academy of Medicine.

St. Joseph's Hospital in Phoenix in those early days could accommodate twelve patients; even then it was not always filled. The majority of the cases were medical, for there was no operating room. When an operation had to be performed, the linens were boiled in a clothes boiler and used at the operation while still wet. Two carpenter horses would be placed in the patient's room, to support a specially constructed board cover which completed the improvised operating table. The patient was then placed upon this table, and the parts to be operated upon were thoroughly washed with soap and warm water.

The surgeon invariably prepared himself for the operation by removing his coat, rolling his sleeves above the elbow, and putting on a non-sterilized rubber apron. The purpose of the apron was to protect his clothing. His hands and forearms were also washed with soap and warm water. Caps, masks, gowns, and gloves were gadgets not yet thought of for surgery. Chloroform was the anesthetic of choice; ether was given by the cone method and wrought terror upon the patient. Several persons were usually required to hold the patient on the table during the preliminary stage of anesthesia.

Operations, however, usually proceeded satisfactorily. Silk sutures were used, and few infections resulted. Wounds almost always healed by first intention; there was only an occasional

postoperative hernia. Stomach lavage, transfusions, hypodermoclysis, proctoclysis, intravenous fluids,—none of the pre- or post-operative methods in use today—were known then. Water was withheld for two or three days after operation. Rarely was a narcotic given to relieve pain. With meager equipment surprisingly satisfactory results were obtained. As I review the situation today, the pioneer surgeons and their patients assume heroic stature.

The injured workman was usually a private patient who relied upon his employer to compensate him for loss of time, suffering and disability. Though some of the cases were settled satisfactorily, the majority were taken into court before settlement was effected. When these became court cases, the physician waited for his fee until settlement could be obtained; frequently the workman received his compensation, the attorney his fee, and the doctor, who had borne the burden of restoring the workman to health, continued to wait. Of course, if the case was lost by the workman, the physician was lost along with him.

TODAY

We are in an all out war; so the first duty of the doctor of medicine in Arizona is to his country, even though it means the "Supreme sacrifice". The doctors of medicine in this state are making their contribution to national defense and to the safegnarding of national integrity and ideals. Without prospect or even thought of reward, they are contributing their services to the fullest extent. Doctors of medicine are accepted and called into the army and navy to serve in their professional capacity; without them the armed forces could neither organize nor operate. Those of our members who remain at home must give all aid to civilian defense as well as other war activities. There is much that you can do to aid; give freely your professional services; give freely financial aid; buy war bonds—they are a good investment.

Each member of our association should appoint himself a committee of one to get new members. We need the prospective members, but even more, they need what our association has to give to them. Doctors living in Arizona, who are eligible to membership in our association and who do not embrace the privilege, are losing a life's treasure which can only be appreciated by the members who are regular attendants at our annual meetings.

Good will among our members must be cherished as one of our greatest assets. Good will is largely a matter of personal attitude. Consequently every member of our association has an individual responsibility. He must refrain from doing and saying things that will give offense to a medical confrere. No physician should consider himself independent of his professional neighbors. As was stated by Dr. J. Miller in 1892, "The greatest good to the medical profession can be accomplished through organization." Our neighbor's problems are the same as our own; it is only by co-operation and good will that he can enjoy his work and be able to carry it on to the best advantage to his patients and himself. The satisfaction of good will among one's professional neighbors is a thing worth working for. There is a great difference between meeting a physician with whom you are friendly and one towards whom you hold a grudge.

Members of this association have real work ahead. I expect full co-operation from every member. Individually, and as a group, we must explain to the laity that good health, that is, a sound mind within a healthy body, is their most important earthly asset. The medical profession is the only group qualified through education and experience to direct and actively carry out the problems pertaining to public health. We must see that the citizens of Arizona have laws protecting their health, permitting them to have the best medical service possible; that the Superintendent of Public Health be appointed subject to our approval; that patients confined in state institutions have proper medical service; and that members of the Board of Medical Examiners shall likewise be appointed only after approval of our association. Only in this way can we maintain a high standard of medicine in Arizona. Someone must advise the legislators and the governor of such matters, and doctors of medicine are the only persons qualified to pass upon such problems correctly.

The Public Health Code as enacted by the last regular session of the legislature is adequate; it is being administered by an experienced and thoroughly qualified Superintendent of Public Health, who is a respected member of our association. We should aid him in every way possible that the health of the citizens of our state may be improved.

The Arizona Industrial Commission co-operates with our association through the Industrial

Relations Committee. They hold a joint meeting once a month to discuss problems that arise between the physicians and the Commission as a result of the treatment of industrial cases. Through combined effort these meetings clear up the problems involved. The recently adopted fee schedule was drawn up by the Industrial Relations Committee, with some minor changes made by the Commission with the approval of the Committee. It is felt that this fee schedule is one of the best operating in the United States. Because of the co-operation which our association has received from the Commission, we have a very friendly feeling toward them.

House Bill No. 178, adopted by the last regular session of the legislature and signed by our governor, created a law which gave osteopaths "equal rights and privileges with physicians and surgeons of other schools of medicine relative to the treatment of cases and the holding of public office or position, and their reports shall be accepted by the officers of the department of which the same are made, with like force and effect." By the enactment of this measure the licensing standard for the practice of medicine was materially lowered, placing the health of the people of Arizona and the future welfare of the state in jeopardy.

After much effort and at a great cost a fairly satisfactory amendment relating to osteopathy was enacted by the last session of the legislature. The practice of osteopathy as defined is limited to that system of treatment as taught and practiced in the standard colleges of osteopathy recognized by the American Osteopathic Association; the college of osteopathy is also defined: major surgery is limited to those having "at least two years of surgical internship in a hospital or hospitals approved either by the American Osteopathic Association, or by the American Medical Association; and then such practice of major surgery shall be only in osteopathically owned or controlled hospitals or institutions."

Human nature cannot be changed by legislation; neither can qualification as a DOCTOR OF MEDICINE be acquired by legislative activity; not even when it has been voted at a late last-hour night session. It is the trained and qualified DOCTOR of MEDICINE who determines success in the proper care of the ill and injured. Only trained DOCTORS of MEDICINE are qualified to direct and administer public health measures. Arizona's fourteen approved hospitals can continue to hold their honored position, only if we can maintain high standards of medicine in Arizona. DOCTORS of MEDICINE, who have courage and are willing to use persuasion, can easily educate the intelligent people of Arizona to understand the importance of maintaining the high standards of medicine within our state. Thousands of people come to Arizona each year at the suggestion of their physician. We must not let it be said that the standards of medicine in Arizona, as set by our legislators, are too low to be recognized by physicians in other states. Remember, you have in your brain the most wonderful store of knowledge which God and man ever created. For heaven's sake, use your influence with the people of your community to keep the standards of medicine high so the citizens of Arizona can continue to have that high type of medical service which they are entitled to receive. Talk with your legislator; show him where he was wrong, dead wrong. Convince him even against his will, if necessary. Get others to talk or write to him. Legislators, and even the governor, will heed the appeal of a majority of the voters. We must make them realize that only after a long period of schooling and practical application are DOCTORS of MEDICINE qualified to practice.

Let us recapture the enthusiasm of the pioneer physician. He constantly strove to better the medical profession, to secure the passage of laws regulating its practice. Many of our members have never attended the annual meetings; others appointed to serve on committees accept graciously, but fail to attend meetings to serve the association. During the past year the members of the Scientific Assembly did not serve well; the majority showed no special interest in the work of the committee and did not attend the meetings regularly. The April meeting was cancelled because a quorum was lacking. Each committee has a definite purpose and should function properly. Therefore, in the future, all members who accept appointments on committees must be willing to serve when called upon to do so. Since the association is doing all it can to aid its members, so the individual member must be willing to give something in return for what he has received.

It is high time for the medical profession to develop leadership in medical matters, not only of the state, but also of the nation. Upon our shoulders rests the responsibility for maintaining one of the nation's greatest institutions—free and independent medicine—an institution upon which the American people have every right to rely for the protection of their health and the prolongation of their lives. Each member of this association must be a leader and a teacher in his community. He must take the time to explain to his patients and citizen group the importance of the DOCTOR of MEDICINE in relation to public health and the extension of the best medical service possible to all citizens. At times, it is difficult to make the public understand that the doctor can plead the cause of scientific, ethical medicine for other than his own self-interest; yet, it must be done in Arizona in order to maintain standard public health measures and to prevent unqualified persons attempting to practice medicine. And it can be done.

If I have spoken strongly, it is only because I feel strongly upon this subject. Forty-two years of practice, first within the Territory, and then within the State of Arizona, have taught me this if nothing more; life becomes worthwhile through doing, not getting. The reward of my forty-two years lies not in fees for professional services rendered, but in the memory of whatever slight part I have played in helping shape for the better the field of medicine and surgery within this state.

Within his own memory does man find success or failure in life. Some of you younger men may smile at such philosophical mysticism. But wait until you have practiced for nearly a half century; and if you do not feel the same, then I—wherever I may be—shall feel sorry for you.

Professional Bldg.

Conservative Surgical Treatment of Peptic Ulcer

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In August, 1881, Wolffler performed the first successful operation on the human stomach. In the fifty-eight years of its history, gastric surgery has long since passed the stage wherein it was resorted to only as a palliative or life-saving measure. Its usefulness has been extended so that at the present time it is utilized not only in the eradication of malignancy but also in the treatment of benign and uncomplicated disease of the digestive tract. In fact, the field has become so broad that in an hour devoted to its discussion one can only hope to treat the subject superficially. I shall, therefore, endeavor to avoid controversial points and confine my discussion to conservative views which today are held in favor in this country.

This discussion will be divided into three parts, first, a clinical classification of surgical peptic ulcer; second, an outline of the indications for operation and third, a discussion of appropriate treatment of each type of ulcer mentioned in the classification.

CLINICAL CLASSIFICATION

At the outset let us consider a clinical classification of surgical peptic ulcer. First, there are the acute inflammations of the stomach and duodenum, namely, gastritis, duodenitis and acute peptic ulcer. Recently European Clinicians have recalled to our attention acute localized inflammation of the gastric mucosa, while in America certain writers have described a similar condition of the mucous membrane of the duodenum. Occasionally one of these lesions is the only finding at operation performed for the relief of typical ulcer distress, in patients with characteristic roentgenologic signs of ulcer and, usually, evidence of some complication, particularly hemorrhage from the gastro-intestinal tract. It is believed by some pathologists that this type of inflammation is the fore-runner of actual ulceration and is the condition which often progresses to typical chronic ulcer of the stomach or duodenum. Acute non-calloused peptic ulcer frequently is seen at operation or autopsy following the complication of acute perforation or hemorrhage.

In chronic simple, or uncomplicated, peptic ulcer the problem of determining appropriate treatment is chiefly a question of location of the ulcer. The decision as to whether medical or

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surgical treatment should be applied rests in part on the determination by x-ray before treatment, whether the ulcer is located in the stomach or in the duodenum.

A second factor, namely, situation of the ulcer is one which usually cannot be ascertained prior to operation. It is, however, of the greatest importance in selection of the operation most suitable in a given case. If the ulcer is in the stomach the operation selected depends upon whether it is situated on the anterior wall, the posterior wall or near the cardia. If it is duodenal, the choice of operation depends on whether it is on the anterior or the posterior wall of the duodenum.

The treatment of the complications of peptic ulcer naturally varies with the type of complication. Those common to ulcer both of the stomach and duodenum, are obstruction; hemorrhage, of which there are clinically acute and recurrent types; and perforation, of which clinically there are acute, subacute and chronic perforating varieties. Complications characteristic of ulcer of the stomach, and uncommon to or absent in the duodenum, are hour-glass deformity and malignant degeneration.

The treatment of recurrent peptic ulcer depends on whether it follows gastro-jejunostomy or partial gastrectomy and in addition whether or not it is complicated by hemorrhage or perforation.

Some form of clinical classification of surgical peptic ulcer is of great aid in the treatment of this disease, the varied features of which often are puzzling to the surgeon.

INDICATIONS FOR OPERATION

The sixteen procedures (Fig. I.) used in the conservative surgical treatment of peptic ulcer may be said to be the armamentarium of the gastric surgeon. I should like to sound a note of caution at this point against the rigid adherence at operation to a surgical procedure planned before operation on the basis of clinical and roentgenologic manifestations. With respect to the choice of procedure, the surgeon should maintain an open mind until he has had the opportunity to explore the abdomen. He should be guided in this choice by the results of this direct examination of the lesion.

Every case of peptic ulcer presents two problems. The first problem to be solved is the choice between medical and surgical treatment. If surgical treatment is determined upon the second problem is to select the appropriate operation.

The first consideration in the choice between medical and surgical treatment embraces personal factors on the part of the patient. These factors include intelligence, cooperation and economic status. I think it safely may be said that surgical treatment is preferable if the patient has not the intelligence, inclination to cooperate or economic means to pursue a prolonged period of medical treatment. Other things being equal, I believe that uncomplicated cases of peptic ulcer should have a trial at medical treatment before surgery is advised.

A second consideration of the utmost importance in the choice between medical and surgical treatment is the anatomic location of the ulcer as determined by roentgenologic examination. Many, or perhaps most cases of uncomplicated duodenal ulcer not only may be but probably should be treated by medical means because the occurance of carcinoma of the duodenum is rare. This unqualified statement does not apply, however, to gastric ulcer because of the greater possibility of the existence of malignancy in ulcer situated in the stomach. It has been demonstrated repeatedly that the large ulcers of the stomach are commonly malignant and that whereas the frequency of malignant degeneration is less common in small ulcers, the physician cannot be certain that malignant cells are absent without the benefit of competent opinion based on microscopic examination of the tissue. While a trial at medical treatment under close clinical and roentgenologic observation is justifiable, in patients with large gastric ulcers wherein prompt definite response is not noted, the benefit of surgical exploration should not be delayed.

The third important consideration in the choice between medical and surgical treatment refers to the severity and the duration of the symptoms and to the clinical course of progress of the disease. Duodenal ulcers which occasionally produce acute, mild or merely annoying symptoms may be treated medically with marked benefit. On the other hand, simple or uncomplicated duodenal ulcers which produce chronically recurring, severe or frequently disabling symptoms usually require surgery for relief. The chronicity characteristic of peptic ulcer is one of its greatest problems so that once a victim the patient is potentially a victim of

ulcer for life. Thus delay in the application of surgical treatment may afford opportunity for the development of complications or features which make operation more difficult or the benefits of surgery less certain.

The second problem, relative to the choice of operation in surgical peptic ulcer, is the more difficult because usually it requires decision at the operating table. The choice should be based on three points: first, the age and general condition of the patient; second, the anatomic location of the ulcer, and third, the pathology encountered. In general a youthful patient will tolerate radical surgery quite well. Unfortunately, however, the aged victim of peptic ulcer often has permitted the disease to progress to the point where more radical procedures are required. In the latter group, extensive surgery such as partial gastrectomy can be divided, if desired, into two or more stages with advantage to the patient.

I already have pointed out that the anatomic location is a determining factor in the choice between conservative and radical treatment. For the reason that gastric ulcers, being actually or potentially malignant, more frequently require surgical treatment so also do they call for complete surgical removal whenever this is possible.

In duodenal ulcer, on the other hand, the safe disregard of the question of malignancy, which, as I have said, permits the application of conservative medical management, likewise allows the utilization of conservative surgical procedures in the treatment of surgical duodenal ulcer.

In the selection of the type of operation applicable to a given case of surgical peptic ulcer, a factor as important as any other is the type and extent of the pathology encountered on exploration of the abdomen. Thus, the surgical procedure may vary with the acuteness or chronicity of the ulcer as determined by the degree of induration or callus formation found to be present. Likewise it varies according to the presence or absence of the complications characteristic of peptic ulcer, namely, hemorrhage, perforation, obstruction, hour-glass deformity or evidence of malignant degeneration.

CONSERVATIVE SURGICAL TREATMENT OF PEPTIC ULCER

We shall now turn from this general discussion to a consideration of the selection of appropriate types of operation for the different varieties of peptic ulcer.

In conservative surgical treatment of gastric ulcer, the selection of operation depends on two factors, namely, the size of the ulcer and the situation of the ulcer. In gastric ulcer with a diameter of less than 2.5 cm. knife or cautery excision (Fig. 1, G, H) is permissable provided the services of a competent pathologist are available for immediate microscopic examination of a frozen section cut from the ulcer after its removal. After closure of the opening made by removing the ulcer, it usually is desirable to provide permanent drainage from the stomach preferably by performing posterior gastrojejunostomy (Fig. 1, M). In general, gastric ulcers which exceed a diameter of 2.5 cm., because of their actual or potential malignancy, should be removed by partial gastrectomy with the reestablishment of gastro-intestinal continuity by the Polya or Billroth II method. (Fig. I, N, O.)

We shall refer now to the selection of operation based on situation of the ulcer. In small

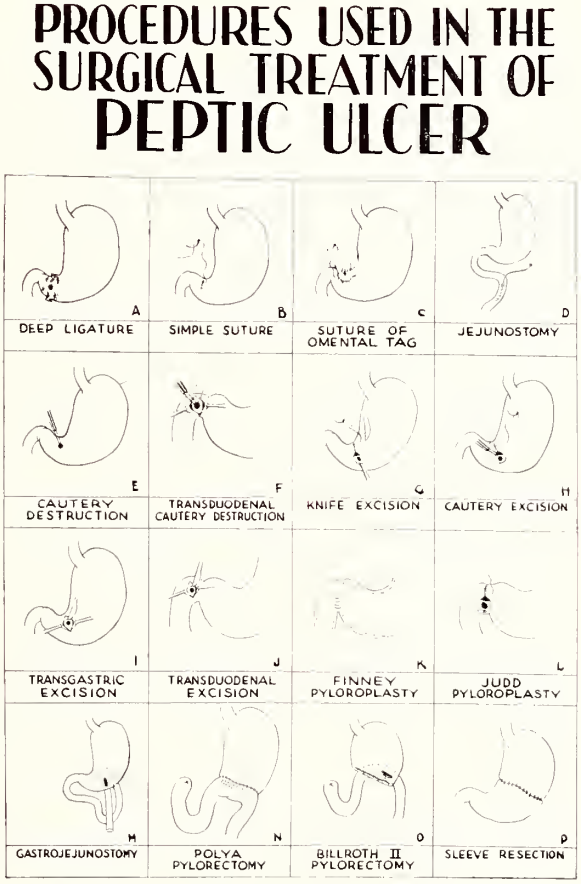

Figure I

gastric ulcer situated on the anterior wall, lesser or greater curvatures of the stomach knife or cautery excision (Fig. I, G, H) may be employed after benignity of the lesion has been determined by the pathologist. Ulcers of small size situated on the posterior wall of the stomach may require transgastric excision (Fig. I, I) with gastrojejunostomy. Ulcers situated at or adjacent to the cardia should be excised if possible. If by virtue of their location they are difficult or impossible to remove, they should be treated by complete physiologic rest to the stomach with feeding of the patient through a jejunostomy tube (Fig. I, D) until roentgenologic followup examination discloses definite improvement.

In the surgical treatment of duodenal ulcer, because the occurance of malignancy in the duodenum is rare, the selection of operation depends on only one factor, namely, the situation of the ulcer. Duodenal ulcers situated on the borders and anterior wall should be excised with the knife or cautery, the opening being closed in the form of the Judd or Finney pyloroplasty (Fig. I, K, L) provided the duodenum is sufficiently mobile to permit of these procedures. Otherwise destruction of the ulcer by cautery puncture, suture of the puncture wound and the performance of posterior gastrojejunostomy (Fig.I, M) is the only alternative. Ulcers situated on the posterior wall of the duodenum should be destroyed with the actual cautery through a transduodenal approach (Fig. I, F) and the latter opening closed transversely to the axis of the intestine in the form of a pyloroplasty.

The next consideration of peptic ulcer will be from the standpoint of pathology with special reference to whether the ulcer is simple or complicated. The acute uncomplicated duodenal ulcers and the so-called cases of duodenitis usually are encountered on exploratory incision of the duodenum in patients who have experienced symptoms or complications of considerable severity. The most conservative procedure in these mild pathologic changes is to excise the lesion and close the longitudinal incision transversely to the axis of the duodenum, a procedure which unquestionably relieves a large proportion of these cases.

The complications common to acute and chronic peptic ulcer, namely, hemorrhage and perforation demand special consideration. As patients seldom die from the initial hemorrhage from gastric or duodenal ulcer, the preferred treatment may be either the conservative medical treatment consisting of rest in bed under morphine, ice to the abdomen, fluids under the skin, and by rectal drip followed by diet similar to that devised by Sippy and transfusion of blood if required; or according to the principles outlined by Meulengracht wherein the patient is kept under close observation with full feeding, alkali powders and transfusion if necessary. When hemorrhage tends to recur, cautery excision (Fig. I, H) or destruction (Fig. I, E) of the ulcer is indicated supplemented by pyloroplasty in duodenal ulcer and gastrojejunostomy in gastric ulcer as the case may be. In gastric ulcer the procedure of second choice is pylorectomy (Fig. I, N, O) otherwise ligation of the adjacent vessels by deeply placed ligatures. (Fig. I, A.)

The requirements in perforation of peptic ulcer vary with the acute, subacute or chronic perforating types of this complication. Acute perforation demands closure at the earliest possible moment either by purse string or mattress suture (Fig. I, B) or by suturing into an overlapping position a plug of omentum. (Fig. I, C.) If operation is delayed longer than six hours after acute perforation takes place the mortality mounts with each six hour period of delay. Prior to six hours after perforation excision of the ulcer or even posterior gastrojejunostomy may be undertaken with caution provided, of course, some other factor has not markedly lowered the patient's general resistance. In cases wherein marked narrowing of the lumen of the bowel results from the closure of the porforation, gastrojujunostomy may be necessary adjunct to the treatment. Subacute exacerbations of chronic perforating ulcer are preferably treated by rest to the organ either medical, as outlined for initial hemorrhage, or by the aid of jejunostomy. Later, the chronic perforating ulcer in absence of subacute perforating symptoms may be excised with drainage by pyloroplasty gastrojejunostomy or partial gastrectomy.

Gastro-intestinal obstruction resulting from peptic ulcer requires first, preliminary treatment of the associated toxemia and second, surgical relief of the obstruction itself. The toxemia consists of a lowering of the chlorides of the blood, an increase of the blood urea and al-

kali as evidenced by an increase in the carbon dioxide combining power of the blood. These changes are relieved in a few days by the administration of saline and glucose intravenously and by systematic lavage or siphonage of the stomach. Surgical relief of the obstruction by gastrojejunostomy (Fig. I, M) is usually followed by such marked benefit to the patient that obstruction constitutes one of the chief indications for this operation.

Hour-glass stomach is a complication which occasionally results from spasm or contracture attendant upon or secondary to gastric ulcer. Operations such as multiple gastro-intestinal anastomosis, gastro-gastrostomy and excision of the contracture have been quite generally discarded in favor of partial gastrectomy (Fig. I, N,O). In rare cases sleeve resection (Fig. I, P) may be applicable.

The complication of malignant degeneration of gastric ulcer moves the patient into another field of gastric surgery. These cases will be managed adequately, however, if the principles laid down for treatment of gastric ulcer in general are observed.

1930 Wilshire Blvd.

Treatment of War Injuries to the Chest

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Here is valuable information on emergency chest surgery that is well presented. Readers would do well to heed.—The Editor.

I FIND that the handling of wounds of the chest in the essential characters that have to do with life, does not differ greately in war and in civil life.

In these cases there is a very narrow margin of safety owing to the vital nature of the heart and lungs. The immediate factors present are shock, often hemorrhage and disturbance of the normal negative pressure of the chest upon which respiration and circulation of blood depend. Motion or flapping of the mediastinum may be caused with fatal obstruction to respiration.

There is a difference in that war injuries, with the exception of bayonet and knife wounds, are caused by fragments of greater or less size, often jagged, irregular and of unusual shapes. Also in the wounds and often in the chest is a variable quantity of debris of different sorts. The wounds are seldom clean and require greater care.

PRINCIPLES OF WOUND THERAPY

The first principle then in treating external wounds is careful debridement as in wounds elsewhere. Compound fractures of the ribs and wounds of soft parts require cleaning and closure if seen in the first eight hours.

A war wound not often seen in civil life is the blast injury. A man may be killed by blast, no external wound showing. The pathological change occurring is multiple alveolar hemorrhages. However, in some of these cases, death is not immediate and symptoms may be delayed two to five days. There is tachycardia, restlessness, dyspepsia, cough and blood-tinged sputum. Treatment is absolute rest, sedation, oxygen.

Deeper chest wounds may injure the lungs, heart or aorta or large vessels, mediastinum or diaphragm, or smaller structures.

Wounds of the aorta or cavae and perhaps the azygos and larger pulmonary arteries or veins will often prove fatal before treatment is available.

The simplest remediable injury is that to an intercostal vessel. In certain cases these may be controlled by the insertion of a mushroom type of pack to cause pressure on the vessel. This is temporary and must be followed by ligation. In many cases, and in injury to the internal mammary vessels, ligation must be done at once, frequently following a small rib resection.

Wounds of the lung are of two principal types, the closed penetrating and the open or sucking. The primary treatment must always be that of shock. No operative intervention is justifiable until shock is controlled and as accurate a diagnosis as possible is made.

Injury to the lung is shown by shock, usually some hemoptysis, subcutaneous emphysema, and soon, due to spontaneous pneumothorax or hem-

(Read before War Session, American College of Surgeons, Phoenix, April 21, 1942.)

orrhage there is tympany caused by air in the pleura or increasing basal dullness due to blood accumulation.

It is dangerous and often fatal to operate immediately upon such a case. However, if the wound is an open, sucking one, this must be closed immediately. A tight rubber pad may be sufficient. Otherwise a few superficial sutures must be used or the lung may be drawn into the opening. We then have a closed wound. In these cases often the pressure of air in the pleura and the ensuing collapse of the lung control the hemorrhage.

However, if prolapse of the lung through an open sucking wound has occurred, it should be held in position while debridement is carried out. Positive pressure anesthesia is here useful if available. Tears in the lung which may have been caused by fractured rib ends are then repaired. The chest is then closed and water seal drainage established in the presence of infection.

At times of course we may have an excessive spontaneous pneumothorax. This can be caused simply by a rib fracture, when the lung is torn. Excessive air pressure pushes the mediastinum over and can even cause compression of the opposite lung. Excessive pneumothorax on the right side of the chest especially may collapse to some degree the venae cavae and thus embarrass circulation even without undue pressure on the left lung. In these cases the blood pressure drops markedly and collapse may ensue. Removal of air is the treatment and this may have to be done repeatedly if the hole in the lung does not close.

In a closed wound, the collection of blood in the pleura may cause sufficient pressure on the lung to stop the hemorrhage. In this case, the accumulated blood must be aspirated after twenty-four hours and replaced with air. According to Edward and Davies[1] about 70% of all chest wounds are complicated by hemothorax. The withdrawal of blood and replacement of air is shown to be much the best treatment, Berry[2] states, according to records of the New York police force. When it was not done there was 26% mortality in seventy-six cases. When carried out there was no mortality in seventeen.

If hemorrhage from the pulmonary vessels, however, is not controlled as shown by continued blood-spitting, increasing pulse rate and pallor, or filling of the chest with blood, aspiration and auto-transfusion must be used and when shock is controlled the chest must be opened and the bleeding vessels ligated or the affected lobe resected. Fragments of bone and debris should be carefully removed from the chest and closed intercostal drainage with water suction be established. Sulfathiazole powder may be left in the pleural cavity. The patient is placed on the affected side and strapping may be used to limit motion.

Wounds of the diaphragm need not be repaired immediately unless of such size that marked herniation into the chest has occurred. In these cases abdominal injuries may complicate the picture.

An important condition that can cause death if not relieved is mediastinal emphysema. This may be overcome by a simple superior mediastinotomy done in the neck.

Chylothorax from injury to the thoracic duct is treated by repeated aspirations of chyle from the chest.

Pulmonary collapse or atelectasis of lobes of the lung does occur. In cases described by Zuckschwerdt and Pickel[3] the cause was thrombus occulating a bronchus or swelling and narrowing of the bronchial lumen produced by injury to the bronchial mucosa.

The clinical signs are dullness over the area, diminished or absent breath sounds, displacement of the heart toward the affected side. There is dyspnea, rapid pulse and sometimes collapse. The fluoroscope shows shadow in the affected area, the heart and mediastinum moved toward the affected side and elevation of the diaphragm.

The authors state that coughing may dislodge the bronchial obstruction. Otherwise, after shock is sufficiently abated bronchoscopy should be done. Dyspnea may be relieved by artificial pneumothorax which tends to overcome the shift of the heart and mediastinum.

Berry[2] reports a case of fracture of the bronchus from a crushing injury to the chest, and atelectasis of the lung. This had occurred five years previously and pneumonectomy was performed.

HEART WOUNDS

The wound requiring operation as soon as seen is that to the heart. Here, there is hemorrhage into the pericardium and there is quickly set up the condition known as cardiac tamponade. The increasing blood pressure in the

pericardium will eventually cause heart stoppage and many of these cases will not be seen soon enough for surgery. They do not always collapse at once. Elkins[4] says that when tamponade is produced slowly the venous pressure may rise enough to maintain circulation for days.

With cardiac tamponade there is a feeble pulse, congestion of the superficial veins, cyanosis of the face and tongue, weak and often irregular heart sounds, lowered arterial and raised venous pressure. The fluoroscope shows diminished cardiac pulsation.

A needle may be inserted into the pericardium but will accomplish little because there is early clotting of blood. Removal of blood also may set up fresh bleeding. Therefore, this should be used only as temporary expedient to relieve pressure.

At operation the heart is exposed by an incision over the 4th to 6th left costal cartilage near the sternum. The pleura must be pushed aside and not injured if possible. The pericardium is found tense, bulging and blue. The tear in it is enlarged and the heart exposed. The blood in the pericardium is quickly aspirated and all clots removed. A finger is immediately placed over the rent in the heart which is then closed with fine black silk sutures. The pericardium is then repaired loosely and the wound closed without drainage.

In all of these cases we have discussed, postoperative care is of the greatest importance. Oxygen and frequent blood transfusions are valuable and sufonamides for the control of pneumonia. Bronchial secretions must be freely eliminated, by tracheal catherter if necessary, and in lung conditions every effort must be made to reexpand the lung. Fluids must often be drawn from the pleura and if sepsis occurs, treatment of empyema must be instituted.

For anesthesia, morphine and scopolamine followed by sodium pentothal is recommended or ether or cyclopropane with a high percentage of oxygen. For intrathoracic operations some type of inhalation anesthetic under positive pressure is essential.

In summary:

1. Careful debridement is essential.
2. The primary treatment is that of shock.
3. Pulmonary bleeding is often controlled by spontaneous pneumothorax or bleeding into the pleural cavity.
4. Open sucking wounds of the chest must be quickly converted into closed ones.
5. Hemothorax must be treated by aspiration and air replacement.
6. Immediate operation is required for penetrating wounds of the heart.

Professional Bldg.

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Pathological Physiology of the Liver

II. General Metabolism

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IN a previous paper on this program[1] the relation of the liver to the regulation of the cell content, the circulating volume and certain physico-chemical properties of the blood, was discussed. This paper will be devoted to a consideration of the role of the liver in the general metabolism of the body as a whole; in the special metabolism of proteins, carbohydrates and fats; and in certain poorly understood fatalities commonly designated as "liver deaths".

The liver and skeleton muscles, partly because of their mass but chiefly because of their intense chemical activity, produce most of the heat of the body. Removal of the liver from an experimental animal reduces its body temperature several degrees. Furthermore, under normal conditions, because of its great production of heat and because of its complete insulation as a result of its position deep in the body, the internal temperature of the liver is higher than

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that of any other organ. Elevation of temperature increases the speed of chemical reactions. Its relatively high temperature may therefore account for the fact, emphasized by Mann, that the liver carries out its metabolic processes rapidly.

STORAGE

The liver is the only organ that stores nutrient materials to be used by other organs of the body. Its storage of glucose by polymerizing it into glycogen will be discussed in some detail later in this paper. The liver does not normally store fat, but in various pathological conditions this substance may accumulate in the liver in huge quantities. The storage of protein is not a specific function of the liver, as is that of sugar. The protein supply of the liver consists of that in the substance of its own cells. But this substance is shared liberally with the other organs when they need it. Thus, in a short fast, as demonstrated in experimental animals, the liver may lose 20 per cent of its protein during a period in which other organs lose only 2 per cent. In prolonged fasts, 40 per cent of the protein of the liver may disappear. The liver is constantly either storing glucose and protein or liberating them into the blood stream. Which of these processes is active at any particular moment is determined by the general metabolic needs of the body. As pointed out by Mann the liver responds to, rather than controls, the general metabolic processes.

Certain products of digestion absorbed from the intestines are not readily utilized by the cells of the body. The liver transforms these into substances from which the body can obtain energy or build tissue. As examples of this function is the transformation of levulose and galactose into glucose, the only carbohydrate which the cells can use easily and economically; and the reduction of chemically inert saturated fats into chemically active usable unsaturated fats. All these functions are disturbed in extensive injury to the hepatic cells.

Alterations in the functions of the liver may occur in response to changes in the general metabolic requirements of the body. For example, in diabetes mellitus the liver does not store glycogen either because of the necessity of maintaining a hyperglycemia to compensate for the constant loss of sugar in the urine, or because the lack of insulin renders the liver incapable of performing this function.

The relation of the liver to vitamin K was discussed in the previous paper. This origin is also concerned with other vitamins. It manufactures vitamin A from carrotene. It stores vitamin D, and is rich in vitamin B and G. The functions of the liver with reference to all these vitamins are markedly reduced in extensive disease of this organ. The serious vitamin deficiency, particularly in the B group, which is so common in chronic alcoholism is probably related to the effects of alcohol on the liver.

BILE FORMATION

One of the specific functions of the liver is the formation of bile acids and their salts. These substances are essential to the digestion and absorption of fats which are the body's chief source of energy. They are less readily oxidized than glucose which is the emergency fuel; but without fats serious general metabolic deficiencies result. Any of the pathologic conditions that result in the failure of bile acids to reach the intestine, such as obstruction of the common bile duct, long continued bile fistula and inability of the liver to manufacture bile acids, are accompanied by general metabolic disorders due to lack of available fat.

CHEMICAL ROLE

Hence the liver plays a multiple role in general metabolism, (1) in a direct manner, by furnishing a considerable portion of the body's heat; in more indirect ways, (2) by storing glucose and protein for use in other parts of the body when needed; (3) by transforming poorly utilizable food materials into other substances readily used by the cells; (4) by storing vitamins and other accessory nutrient elements for the general use of the body; and (5) by making possible the absorption from the intestines of the essential food element fat that supplies the greater part of the energy of the body.

Proteins taken as food are digested in the stomach and intestines and are broken down into their constituent amino acids. These are absorbed into the capillaries of the intestinal mucosa and carried thence in the blood directly to the liver. Here the excess of amino acids, over and above the quantity needed for maintaining the tissues of the body, including the liver itself, are altered by the hepatic cells. The

non-combustible amino—i. e., the NH_2—group is split off from the molecule of the amino acid to form ammonia, leaving a short chain ketonic acid as a residue of the simpler amino acids, such as glycine and alanine, and more complex residues from such amino acids as tryptophane and tyrosine. The ammonia thus produced is combined with carbon dioxide by the liver to form urea which is excreted almost wholly by the kidneys and constitutes 80 to 90 per cent of urinary nitrogen. Extensive injury to the liver or its complete removal in experimental animals, results in a rapid reduction of the urea of the blood, provided the kidneys are still functioning, and an increase in the amino acids of the blood. Crystals of the amino-acids, leucin and tyrosin, may be present in the urine in cases of extensive destruction of liver tissue as in acute yellow atrophy. These crystalline amino acids are derived in part from the undeaminized amino acids absorbed from the intestines after the digestion of protein but chiefly from autolysis of necrotic liver cells.

The short chain ketonic residues of the deaminized amino acids are transformed by the liver into glucose by the process of gluconeogenesis, or they are completely oxidized to carbon dioxide and water. Some of the simpler amino acid residues, such as those from glycine and alanine, are very readily combined into glucose. The liver is apparently the only organ capable of accomplishing this transformation. Destruction of a large portion of the liver substance reduces this function.

A portion of the protein molecule or of its constituent amino acids is converted in the intestine by the action of bacteria, into toxic substances. Tryptophane, by deamination and decarboxylation, is transformed into indole and skatole, tyrosine, by similar processes, into phenol. Other toxic substances—ethylamine and tyramine—are also produced by bacterial action, the former on alanine, the latter on tyrosine. The known formation of these substances in the colon was the basis of the concept of autointoxication, once so popular in medicine and of Arbuthnot Lane's designation of this part of the bowel as a cesspit. But it is now known that these substances are produced in relatively small amounts and are only partially absorbed into the blood stream from the intestinal contents. After absorption they are carried to the liver where they are detoxified and rendered harmless by conjugation in the hepatic cells either with sulphate ions or with glycuronic acid to be excreted by the kidneys, the former as the "etherial sulphates", such as indican, of the urine. The mechanism of detoxification is well illustrated by the fate of ingested benzoic acid. This is conjugated in the liver with glycine to form hippuric acid which is then excreted by the kidneys. This function is reduced roughly in proportion to the degree of damage to the liver itself in different diseases. Hence the amount of hippuric acid which is excreted by the kidneys after the administration of benzoic acid is a useful measure of the extent of damage suffered by the liver.

Other poisonous substances absorbed from the intestines or produced in the body itself are detoxified in the liver by various processes, such as oxidation, reduction, methylation and acetylation. Some exogenous poisons such as bichloride of mercury, and such drugs as cinchophen and salicylic acid, are excreted by the liver in the bile. The Kupffer cells of the liver, which are an important part of the reticuloendothelial system, remove bacteria and colloidal poisons from the blood and are probably concerned in the formation of antibodies.

In connection with the detoxifying function of the liver there are certain interesting similarities between the effects of an Eck fistula and cirrhosis of the liver. In the former, the blood of the portal vein is diverted from its normal course through the liver by anastomosis of that vessel with the inferior vena cava. Animals with Eck fistulas suffer profound intoxication and may die when fed large quantities of protein. This is apparently due in large part to the continued absorption directly into the general circulation of poisonous substances produced by bacterial action or otherwise upon products of protein digestion in the intestine—a true autointoxication. Normally these substances are first carried to the liver in the portal blood where they are detoxified and transformed into harmless substances before they reach the systemic circulation. Eck fistula dogs do better on a high carbohydrate diet or when a substance which yields glycuronic acid, e. g., chondroitin, is administered. In cirrhosis of the liver, because of obstruction of the flow of blood through that organ, much of the blood from the intestines,

with its absorbed toxic products, is shunted through collateral channels directly into the general circulation. Hence in this disease a part of the poisonous substances produced in the intestines does not reach the liver for detoxification. In animals with Eck fistulas all of these toxic substances reach the systemic circulation, hence the greater intensity of protein intoxication in this condition; in cirrhosis of the liver only a part of them reach the general circulation and the intoxication is less severe. The difference is only one of degree.

Thus the liver performs several functions—detoxification of poisonous substances, serving as a reservoir for excess blood in preventing overburdening of a crippled heart and aiding in removing excess water from the blood stream—functions which serve to protect the remainder of the body from deleterious effects of various kinds. Diseases of the liver reduce one or more of these protective functions.

The polysaccharides of the food are decomposed in the intestine into monosaccharides, which are then, like the products of protein digestion, absorbed into the blood and carried directly to the liver. Here the monosaccharides fructose and galactose are transformed into glucose. The glucose which is absorbed as such from the intestine together with that produced by the transformation of fructose and galactose the liver upon the residues of the deaminized and that formed by the gluconeogenic action of amino acids from protein digestion and upon lactic acid, is polymerized into glycogen and stored in the liver for future use by the body as a whole. From all these sources the liver acquires on an ordinary diet a considerable store of glycogen. The deposition of glycogen begins in the hepatic cells about the central vein and extends toward the periphery of the lobule. Mobilization of sugar and removal of glycogen takes place in the opposite direction.

SUGAR METABOLISM

Although glycogen is stored both in the liver and in cardiac and skeletal muscle, only that in the liver is readily available as a source of glucose for transportation in the blood to other organs. Hyperinsulinism quickly depletes the store of liver glycogen but has relatively little effect upon that in muscle. Hyperthroidism reduces the glycogen content of both liver and muscle, the decrease being greater in the former than in the latter. Adrenalin depletes the store of glycogen in liver by discharge of glucose into the blood, and that in the muscles by the discharge of lactic acid which is transported to the liver where it is transformed into glucose. These differences in the effects of various agents upon the glycogen stores of liver and of cardiac and skeletal muscles, respectively, are probably due to differences in the function of glycogen in these locations. During contraction of muscle glycogen is transformed into lactic acid through the intermediary of hexose phosphate and during rest, e. g., during diastole in cardiac muscle, glycogen is regenerated from lactic acid by way of hexose phosphate. Glycogen in muscles is, therefore, essential to their proper functioning. On the other hand, glycogen is apparently stored in the liver solely for the purpose of supplying the needs of the body for glucose. Hence sugar is mobilized quickly and easily from liver glycogen and only with difficulty from muscle glycogen.

The polymerization of glucose into glycogen in the liver is accomplished by the enzyme glycogenase, which is probably a reversible enzyme capable both of building up and of breaking down molecules of glycogen, depending upon conditions. In any case, when sugar is needed by the tissues for energy purposes, liver glycogen is decomposed into glucose which is then liberated into the blood stream. There appears to be a condition of homeostasis between the level of blood sugar and the amount of glycogen in the liver, that is, when the blood sugar is at or above the normal level, sugar is stored in the liver as glycogen, but when the level of blood sugar is lowered glycogenolysis occurs and glucose passes into the blood stream.

Various conditions can interfere with the balance between liver glycogen and blood sugar. In diabetes mellitus, the absence of insulin prevents the storage of glycogen in the liver and the blood sugar is constantly at an abnormally high level. In hyperthyroidism, the constant demand for sugar for energy purposes because of the greatly augmented general metabolism, causes depletion of the store of glycogen; the level of blood sugar may occasionally be higher than normal and, in rare cases, some of it may escape in the urine. The injection of adrenalin, overactivity of the adrenal medulla and an excess of the diabetogenic substance of the

pituitary cause a mobilization of sugar and if maintained for any length of time depletes the store of liver glycogen.

The glycogenic function of the liver is closely related to sugar tolerance tests. The normal blood sugar curve in such a test does not rise very high and falls rapidly to normal because the liver is able to remove glucose from the circulating blood and to transform it into glycogen at a rapid rate. If the glycogenic power of the liver is lowered for any reason, as for instance by the absence of insulin, then the liver is unable to remove sugar from the blood and store it as glycogen at the normal rate, the blood sugar reaches a high level and remains high for a much longer period of time than normally.

The galactose test for liver function is based upon the fact that it is moderately difficult for the liver to transform this sugar into glucose. Since this transformation must be accomplished by the hepatic cells before the sugar can be stored as glycogen, any extensive damage to the liver will interfere with this process. Because of the slow rate at which this transformation is made under such conditions, the galactose remains for a longer time in the blood stream and a greater quantity is excreted in the urine. Prolonged galactosemia and excessive galactosuria after the ingestion of this sugar are indications of injury to the liver by disease.

In 1929 v. Gierke described two cases of a peculiar disease to which he gave the name thesauriomosis glycogenica or glycogen-storage disease. This condition is limited, apparently, to infancy and childhood. It is characterized by the accumulation of huge quantities of glycogen in the parenchymatous cells of different organs due either to some disturbance of carbohydrate metabolism or to defective mobilization of sugar. Two types of this disease have been described. In the cardiac type the heart may be from three to seven times the normal size as a result of accumulation of glycogen in the muscle fibers. In the hepatic type the liver may be three or four times its normal size and its cells are packed with glycogen granules. Blood sugar is low due to loss of the power of glycogenolysis by the liver. Furthermore, in ordinary cases glycogenolysis occurs rapidly so that within two or three hours after death practically all the glycogen has disappeared from the liver. In von Gierke's Disease, on the other hand, the glycogen content of the liver remains unchanged for many hours after death.

FAT UTILIZATION

The liver plays a double role in the utilization of fats by the body. In the first place, it must produce bile acids in adequate amount in order that fat may be digested and absorbed from the intestine. Unlike the products of digestion of protein and of carbohydrates, which are absorbed into the blood stream and carried directly to the liver fat enters the lymphatics and reaches the liver only by way of the general circulation. Having entered the general circulation first, the fat stored not in the liver primarily but in the fat depots, namely the subcutaneous and retroperitoneal tissues and the mesentery and omentum, which are the normal storage places for fat as the liver is the normal storehouse of sugar. But there is a further difference, in that the fat is stored in its depots as such, that is as neutral fat, while sugar is stored in the liver in a polymerized form as glycogen. Most of the fat in the depots is saturated fat, because this is the type that predominates in the diet. Saturated fat is inert chemically; to be used by the body it must be desaturated. This process is apparently achieved only in the liver. Certainly the greater part of the fat in this organ is unsaturated. It is also probable that fat is transferred from the depots to the liver in appreciable amounts only when the energy needs of the body are not being adequately supplied in the diet, as in starvation when the fat content of the liver may be very greatly increased. Whether the liver is actually capable of desaturating fat or whether it has a selective action and takes only unsaturated fat from the blood is not not known with certainty. But it is the general opinion, and this is the second role of the liver in the utilization of fat, that the liver does convert inert saturated fat into the chemically active unsaturated form which can be used or burned by the tissues for energy purposes.

Although the liver is not concerned in the storage of fat no other organ of the body becomes so overloaded with fat as does the liver under certain conditions. There is no pattern for the deposition of fat in the liver as there is for glycogen. Perhaps this is due to the relation of these two substances to the functions of the liver. Storage of glycogen is a normal function

of the hepatic cells, and, except in v. Gierke's disease, it never accumulates in such abnormal quantities as to interfere with their other activities. On the other hand, the liver cells may become so loaded with fat that the cytoplasm is reduced to a very thin ring and the nuclei are compressed and flattened against the cell wall and little room remains for glycogen or protein. The functions of such cells are depressed.

There is a sort of reciprocal relationship between fat and glycogen in the liver. In conditions in which the amount of liver glycogen is low, fat may accumulate in large quantities, as in diabetes mellitus and in starvation. Best and his co-workers have shown that the quantity of fat in the hepatic cells is correlated with the amount of choline, or substances in the diet such as lecithin, from which choline may be derived. When choline is deficient, fat accumulates in the liver in large quantities. The presence of adequate amounts of choline prevents the accumulation of fat in the liver and causes it to disappear rapidly if it has already been deposited.

An interesting relation also exists between the amount of fat or glycogen in the liver and its susceptibility to certain types of injury. Chloroform and phosphorus are poisons which have a selective action on the liver. This organ can tolerate much larger quantities of these poisons, both of which are soluble in fat, if it is well stored with glycogen than if its supply of glycogen has been replaced by fat. A diet rich in protein is said also to have such a protective action. A hepatic cell distended with fat is, in large measure, deprived of its two most effective protective constituents—glycogen and protein. Whether this effect of high protein diet is due to an increased store of glycogen by the process of gluconeogenesis from the augmented supply of ketonic acid residues of deaminized amino acids, or to some other factor, is not fully known. The liver is extensively damaged in the toxemias of pregnancy, in eclampsia and in acute yellow atrophy. A high carbohydrate diet is indicated in these conditions in order to increase the amount of glycogen in those cells of the liver which are still capable of storing it. By this means the undamaged hepatic cells may be protected from injury and the condition of these cells not too seriously injured may be improved.

Diabetic coma is largely the result of the formation of ketone substances in the body as a result of disordered metabolism of fat which, instead of being completely burned to carbon dioxide and water, is transformed into acetone and diacetic and oxybutyric acids. The liver is apparently the only organ in which this process of ketosis can take place. Whether ketosis is the result of disordered function on the part of the liver or is an adaptive mechanism by which this organ attempts to dispose of residues of fat incompletely burned by the tissues, is not fully understood.

What has been said thus far is concerned with the relation of the liver to the metabolism of neutral fats. It is also concerned with the disposition of other substances which have some of the characteristics of fat, particularly cholesterol. This substance is excreted by the liver in the bile, and is one of the chief constituents of gall stones. The amount of cholesterol excreted in the bile is roughly proportionate to the quantity of this substance in the blood. It is doubtful whether either hypo- or hypercholesterolemia is a measure of liver function. In general, it may be said, however, (1) that hypercholesterolemia is present in simple obstructive jaundice, but is absent when the jaundice is accompanied by injury of the liver from biliary infection; (2) that cholesterol of the blood is normal or low in jaundice due to extensive degenerative changes in the liver; and (3) hypocholesterolemia usually occurs in acute yellow atrophy and in cirrhosis associated with jaundice. However, there is considerable evidence that the liver is concerned with maintaining the normal proportion of cholesterol and its esters in the blood. In degenerative disease of the liver the relative amount of ester is reduced. In rapidly fatal cases of hepatic damage cholesterol esters may disappear completely from the blood. Hence the determination of the proportion of cholesterol and its esters in the blood is often used to measure the efficiency of the functional activity of the liver.

BILE AND BILE SALTS

The activities of the liver thus far considered have involved substances which are either taken from or returned to the blood. These activities may well be described as the internal secretory functions of the liver. Bile is the one external excretion of the liver. Of its various constituents, bile pigments and cholesterol are formed

outside the liver and are merely excreted by it. Bile acids and their salts are the one specific contribution of the liver itself to its external secretion, for they are manufactured only by the hepatic cells.

Bile salts exert their chief action in the intestine, but upon re-absorption also affect the functional activity of the liver itself. Their presence in the intestine is necessary for the digestion and absorption of fats and for the absorption of cholesterol, carrotene, and vitamins D, E and K. They also facilitate the absorption of calcium and iron. By keeping cholesterol in solution they aid in preventing its precipitation in the gall bladder and the formation of gall stones. They are the most potent stimulants of the secretion of bile.

A. C. Ivy and his co-workers have added much to our knowledge of the normal and pathologic physiology of the secretion of bile and little can or need be added to a brief summary of their work. In the first place three definitions are essential to an understanding of what is here presented. *Cholagogues* stimulate the evacuation of the gall bladder and increase the flow of bile into the intestine but do not increase the rate of secretion by the liver. *Hydrocholeretics* increase the volume of bile but do not stimulate the secretion of the constituents of bile. *Choleretics* augment the flow of bile and increase the secretion of its specific constituents.

The secretion of bile is reduced during fasting. Meat, particularly liver, stimulates the formation of bile either when taken alone or in a mixed diet. In fasting animals, sugar decreases and olive oil increases the flow of bile, but when added to a mixed diet neither has any perceptible effect. Very few drugs increase the secretion of bile. Calomel, in spite of its long clinical reputation to the contrary, is without effect. Acetylsalicylic acid is an active hydrocholeretic, increasing the volume of bile by about 59 per cent but decreasing the secretion of cholates slightly. Bile salts themselves are the most active stimulants of the secretion of bile and its specific constituents. Normally bile salts are absorbed from the intestine and resecreted by the liver. In this entero-hepatic circulation of bile salts there is a loss of about 10 to 15 per cent. This daily loss is made by the manufacture of new bile salts by the liver. Extensive injury to the liver will obviously interfere with this function.

Bile salts are extensively used as therapeutic agents. To be effective such therapy must be based upon an understanding (1) of the pathology conditions in which bile salts are indicated, (2) of the type of bile salt to be used to accomplish the desired effect, and (3) of the mechanisms by which the different effects are produced. As general principles, it may be stated (1) that oxidized unconjugated bile acid derivitives, such as the proprietary preparations dehilin and ketochol, act as hydrocholeretics, for they more than double the volume of bile while reducing the secretion of cholates by about one-third; (2) conjugated ketocholanic acids (such as are contained in the proprietary preparation dehacid) and normally occurring conjugated cholic acids (as in normal bile and in the proprietary preparation bilron) are the most satisfactory choleretics for they increase both flow of bile and the secretion of bile salts.

In view of the above principles it is relatively easy to summarize the pathologic conditions in which bile salt therapy is indicated. In obstructive jaundice when no bile reaches the intestine, the administration of bile salts will aid in the digestion and absorption of fat and in the absorption of vitamin K and other desirable substances from the intestine. The administration of bile salts in obstructive jaundice does not appear to be dangerous because it has been found that the salts so administered are rapidly excreted by the kidneys. After operations on the bile ducts, particularly when a drainage tube is left in the common duct or in the gall bladder, the administration of oxidized unconjugated bile acid derivatives will induce a copious flow of dilute bile that will flush out the bile passages and drainage tube and thus prevent blockage and also aid in preventing ascending infection. In diseases of the liver in which this organ is unable to produce bile salts in adequate amounts, the administration of conjugated cholic acids will relieve the damaged liver of part of its burden of supplying bile salts. For it would seem to be easier for a damaged liver to excrete a ready formed substance than to produce the substance *de novo*. By this means sufficient bile salts may be added to the intestinal contents to permit the digestion of fats and thus avoid the general metabolic dis-

turbances which follow failure to absorb this food element.

LIVER DEATHS AND HEPATO-RENAL SYNDROME

"Liver deaths" and the hepatorenal syndrome are of interest to both surgeons and internists. About the beginning of the present century when chloroform was extensively used as a general anesthetic, an occasional patient would die from three to five days after operation with fairly characteristic symptoms said to be due to "delayed chloroform poisoning". But with the substitution of newer and better general anesthetics that did not have the specific toxic action on the liver that chloroform was known to have, unexpected deaths following operations continued to occur. Heyd, in 1924, was the first to offer a reasonable explanation for these deaths, which he described as "liver deaths". Heyd's cases fell into three fairly well defined groups.

Group I included patients who were usually obese, appeared to be good surgical risks and underwent an uncomplicated operation for disease of the biliary tract. Recovery from the anesthetic was delayed, the temperature rose steadily to 106 degrees F. or higher and, with developing coma, the patient died in from 24 to 48 hours after the operation. The hyperpyrexia was the outstanding clinical characteristic.

Group II included patients that were usually jaundiced and gave a history of previous biliary tract disease, but still appeared to be moderately good surgical risks. Convalescence proceeded well for 36 to 48 hours when irritability and nervousness occurred, the temperature rose steadily to 106 degrees F. or higher, and the patient died in from 24 to 48 hours after the onset of symptoms, or 60 to 96 hours after operation, frequently from circulatory collapse. In this group also hyperpyrexia was the most prominent clinical feature.

In Group III, the patient had undergone a somewhat similar operation and convalesced nicely for some five days when rather suddenly developing somnolence followed by coma, accompanied by oliguria and anuria, ended in death on the 6th to the 10 day. In these cases the non-protein nitrogen of the blood was found to be increased and the patient evidently died in uremia.

All Heyd's cases had undergone surgical procedures involving the biliary tract. Later Helwig and Orr and their co-workers pointed out the interrelations of the liver and kidneys in the third group and added cases other than those which had been subjected to operation upon the biliary tract. Particularly did they stress the effects of traumatic injury to the liver in these cases. Later Wilensky listed a great variety of conditions with which this syndrome may be associated.

In all the cases of all groups of "liver deaths" which came to autopsy the liver showed marked noninflammatory degenerative changes. The organ was fatty and contained numerous areas of necrosis. In patients dying on the 5th to the 10th day in addition to the evidence of extensive damage to the liver, there was marked degeneration of the epithelium of the proximal convoluted tubules and Henle's loop of the kidney with granular detritus and casts in the lumens of the tubules. It appears that these three groups do not represent three different pathologic conditions but rather different stages in one disease. The earliest change occurs in the liver. Hence the pathologic changes found in patients who die during the first three or four days are limited to the liver. However, if the patient survives for 5 days or more the kidneys also become involved. The explanation of this condition requires a brief discussion of the interrelations of the liver and kidneys.

The kidneys are organs of elimination charged with the duty of removing waste products from the blood stream. If the kidneys are to be protected against damage themselves, the waste products which they excrete must be rendered harmless either at their source or at some way station in the circulation. The chief and possibly the only organ in which poisonous substances are detoxified is the liver. Toxic products of bacterial origin in the intestine are carried directly to the liver where they are rendered harmless to the kidneys by processes already described. Indole, for example, is poisonous to the renal parenchyma. In the liver this substance is combined with a sulphate and a potassium ion to form indican which does not damage the kidney during the process of its excretion. The presence of large amounts of indican in the urine therefore simply means that a large amount of indole in being formed in the intestines and that it is being successfully transformed in the liver to harmless indican. Indicanuria is not, therefore, a sign of auto-

intoxication; indoluria, on the other hand, would be such an indication. The latter could well occur if the liver was sufficiently damaged to render it incapable of changing indole to indican.

Extensive injury to the liver starts a vicious circle. If the changes in the liver occur rapidly, as after some violent injury to its parenchyma, the patient may die before the circle is complete, that is, before evidence of renal insufficiency appears. This is the type of "liver death" in which the patient survives the operation or the onset of the symptoms for only a short period of 24 to 72 hours. On the other hand, if the injury to the liver is less rapid or less violent, undetoxified poisons from the intestines or developed elsewhere in the body reach the kidneys and injury to these organs begins. Degenerative changes in the liver and kidneys then progress together. To the poisons which the damaged liver is unable to detoxify are added the products of autolysis of the injured and necrotic hepatic tissue. This constitutes the rounding out of the vicious circle. The degenerative changes in the kidneys so interfere with their function that the non-protein nitrogen of the blood rises, oliguria followed by anuria develops and the patient dies of uremia.

This concept of "liver death" and the hepatorenal syndrome has not been universally accepted. In the first place, it is urged that this condition develops in only a relatively small percentage of patients who have been subjected to surgery. Boyce and others have attempted to circumvent this criticism by suggesting that those patients who do suffer from this condition are "liver weaklings", that is, that there is something in their constitutional make-up that renders their lives less resistent to injurious agents. A similar explanation has been offered for the occasional occurrence of acute yellow atrophy of the liver in patients who have taken cinchophen. But there seems to be no very satisfactory way either to prove or to disprove such a view. In the second place, it is objected that the injurious agents that can give rise to this condition and the diseases in which it occurs are too varied for this to be a definite entity. This, however, is not a valid criticism because it is known that such widely different chemical substances as phosphorus, chloroform, carbon tetrachloride and di-ethylene glycol have a selective toxic effect on the liver and also damage the kidneys.

In 20 cases of "liver death" following decompression of bile ducts obstructed by carcinoma of the head of the pancreas, Stewart and Lieber found regularly disruption of the intralobular architecture with disorganization and dissociation of the cords of hepatic cells. Associated with these changes there was necrosis of the inner third, sometimes extending into the midzone and periphery of the lobules. From a study of a large series of cases of other types, these authors were convinced that this combination of changes in the liver does not occur with any degree of frequency in any pathologic condition other than surgical decompression following total biliary stasis.

Attempts to reproduce the hepato-renal syndrome in experimental animals has not been successful. Practically all of these experiments have been limited to the use of extracts of injured, autolyzing liver, even including extracts of the livers of patients who had died of this condition. But all these experiments appear to have omitted a study of one very important factor. Perhaps it is not substances that develop in the liver itself that initiate the vicious circle, but toxic substances which originate elsewhere, for example, in the intestine, which the liver is unable to detoxify. Until this angle of the problem is investigated, and it does not appear to have been studied up to the present, failure to reproduce the syndrome in experimental animals is not a valid argument against the existence of such a condition.

It must be admitted that the concept of "liver deaths" and of a hepatorenal syndrome has not been completely established. However, the clinical and pathological evidence of disturbed hepatic function as a basis of this condition is fairly clear. Because practically all the varied functions of the liver are performed for the benefit of the body as a whole, this highly altruistic organ is one of the vital structures of the organism. Removal of the liver of an experimental animal results in death in about 24 hours, unless glucose is supplied, when life may be prolonged for a few days. The highly specialized hepatic cells charged with performing so many activities essential to the well being of the body as a whole, are very sensitive to injury. Poisons of various types and from

various sources, imbalances of metabolism and of dietary intake, specific nutritional deficiencies, infections and sudden release of pressure in bile ducts long distended by obstruction, can induce extensive damage to the liver. Injury of hepatic cells causes various types of degenerative changes even to focal and diffuse necrosis. These changes are frequently associated with massive accumulation of fat in the liver cells. In spite of the great susceptibility of the hepatic cells to injury, it is difficult to produce liver insufficiency because of its huge factor of safety and functional reserve. Once this reserve is exhausted there occur disturbances in intermediary metabolism, such as the formation of urea and the polymerization of glucose to glycogen, and secondary disturbances in other organs, notably in the kidneys, which lead to hepatic insufficiency and death. The clinical manifestations of hepatic insufficiency are "hepatic coma" and hyperpyrexia in cases in which death intervenes in 24 to 72 hours after the onset of symptoms; oliguria, anuria and uremic coma when death is delayed until the 6th to the 10th day. Sufficiently extensive damage to the liver deprives the body of manifold essential activities and products. In the presence of the summation of these deprivations the body is unable to maintain life.

The clinical diagnosis of "liver death" and hepatorenal syndrome should be made with great caution. Thoroff has reported four cases in which such a clinical diagnosis would have been justified but autopsy revealed subphrenic abscess; accidental removal of one wall of the common duct and ligation of the common and right hepatic ducts; gangrenous bronchitis and intraperitoneal hemorrhages; and hemorrhagic pneumonia, respectively.

SUMMARY OF LIVER FUNCTIONS

From the above summary of the various functions of the liver it is evident that this is the most versatile organ of the body. It produces red blood cells during fetal life; it aids in clearing the blood of worn-out red blood cells, stores the usable iron obtained from their hemoglobin and excretes another portion as the waste product bilirubin; it is an important factor in regulation of the blood volume and serves as a protective reservoir, or "flood chamber" against overburdening the heart. The liver manufactures vitamin A from carrotene, and stores vitamins D, E and K and the anti-anemia factor essential to the maturation of red blood cells. It is the source of much of the body heat. It secretes bile acids which are necessary for the digestion and absorption of fat. In the hepatic cells amino acids derived from protein digestion are deaminized, urea is formed out of the ammonia thus released, and the short-chain ketonic acid residues of the deaminized amino acids and lactic acid are transformed into sugar by the process of gluconeogenesis. The liver detoxifies many poisonous substances, particularly those produced by bacterial action upon the products of protein digestion in the intestines and excretes other poisonous substances. It produces ketone bodies when fat metabolism is disturbed, as in diabetes mellitus. It stores monosaccharides as glycogen and regulates the level of blood sugar by its glycogenolytic activity. It excretes cholesterol and regulates the relative amounts of this substance and its esters in the blood. These functions are well established. In addition, there is considerable evidence that the liver is the source of fibrinogen, heparin and prothrombin, elements that are concerned in the coagulation of the blood, and of serum albumin and globulin. It probably also desaturates the saturated fats taken in with the food to render easy their utilization by the cells of the body. It becomes clogged with fat when the supply of choline is inadequate.

The structural pattern of the liver is clear-cut and relatively simple, but the location of none of these numerous functions within its lobules is known. There is nothing in the microscopic appearance of the liver cells in different parts of the lobules to indicate that they perform different functions. Little has been learned concerning the location of these various functions within the hepatic lobules from the more or less selective action of different poisons upon the liver cells. For the necrosis which accompanies poisoning by chloroform and phosphorus and the changes seen in eclampsia and acute yellow atrophy, while they effect in a measure different parts of the lobules, all have much the same effect on the reduction of the functional capacity of the liver.

The liver is a very patient organ. It may suffer severe and extreme damage without making detectable complaint either in the form

of characteristic pain or evident disturbance of function. Because of its great functional reserve, it continues to work with a very considerable degree of efficiency in spite of extensive damage and loss of substance, and refuses to reveal its sufferings clearly by even the most elaborate tests. Because of its multiplicity of functions, there is an equal or greater multiplicity of tests designed to determine the functional capability. Because there are no criteria by which we can determine which cells of the liver deaminize amino-acids, which detoxify poisons or which produce ketone bodies, may it not be possible that this huge and patient organ has not learned the principle of division of labor and that its cells are like the old-fashioned housewife who did all the cooking, serving and dishwashing? If this be true, then it would appear that any good test of liver function, such as the galactose test which determines the liver's ability to transform this sugar into glucose and store it as glycogen, the hippuric acid tool which measures its power of detoxification by conjugation, or the test for urobilinogen in the urine which reveals the ability of the liver to re-excrete this substance, is all that is needed to learn something of its functional capacity. For when one function of the cells is disturbed or decreased it may be that all their other activities suffer in a similar manner. But it must not be expected that any test will wrest from this stoical but benevolent organ complete information concerning its pathological condition.

303 East Chicago Ave.

1. Published in May, 1942 issue Southwestern Medicine.

AMERICA AT WAR

BULLETIN ON PROTECTION OF HOSPITALS

"*Protection of Hospitals*", Bulletin No. 3 of the Medical Division of the Office of Civilian Defense, prepared in collaboration with a special committee of the American Hospital Association, has now come from the press in its official form. It was previously published in several hospital journals in order that the material could be used by hospitals at the earliest possible moment.

The bulletin discusses protection of hospitals against air raids under the following heads: Protection of building fabric, patients and personnel; protection of glass; ventilation; protection against fire; rescue squads; air raid shelters; blackout regulations; protection of utilities; facilities for care of casualties; unit system and reserve stocks; the ambulance entrance; morals; distribution of casualties to wards.

Diagrams show how sandbag barricades can be used for temporary reinforcement; how to protect windows against shattering of the glass without cutting off ventilation, and several methods of blacking out. There is a sketch suggesting how an ambulance entrance can be designed to eliminate unnecessary turns and there are also designs for signs to guide ambulances in the blackout.

The section on protection of glass gives detailed instructions on materials that can be used and methods of applying them. Under "Protection Against Fire" there is a description of the various types of incendiary bombs and of the approved methods of fighting them. The report emphasizes the importance of fire and evacuation drills.

VACCINATION AGAINST TYPHUS FEVER, CHOLERA AND PLAGUE

Vaccination against typhus fever, cholera and plague of all U. S. military personnel stationed in or traveling through areas where they would be under serious threat of exposure to these diseases, was recently ordered by the Office of the Surgeon General, U. S. Army, Washington, D. C. The following instructions cover vaccinations:

1: Typhus Fever: The present approved vaccine consists of a suspension of killed, louse-borne, epidemic typhus rickettsiae prepared by the Cox yolk-sac cultured method and obtainable in 20 cc. vials through regular Medical Department supply channels.

Initial vaccination will consist of three injections of vaccine 1 cc. each, administered subcutaneously, with intervals of from seven to ten days between injections. A stimulating dose of 1 cc. will be administered every four to six months as long as serious danger of infection is present, or whenever in the opinion of the

surgeon this additional stimulation of immunity is indicated.

2. Cholera: This present approved vaccine consists of a suspension of 8,000 million of killed cholera vibrios (V. comma) per cubic centimeter, which may be procured in 20 cc. vials.

Initial vaccination will consist of two subcutaneous injections of cholera vaccine with an interval of from seven to ten days between injections. The first dose shall consist of 0.5 cc. and the second dose shall consist of 1 cc. of the vaccine. A stimulating dose of 1 cc. will be administered every four to six months as long as serious danger of infection is present, or when in the opinion of the surgeon this additional stimulation of immunity is indicated.

3. Plague: The vaccine consists of a suspension of 2,000 million killed plague bacilli per cubic centimeter, which may be procured in 20 cc. vials.

The initial vaccination will consist of two subcutaneous injections of plague vaccine with an interval of from seven to ten days between injections, the first dose consisting of 0.5 cc. and the second dose consisting of 1 cc. of the vaccine. Additional 1 cc. doses may be administered whenever in the opinion of the surgeon additional stimulation of immunity is indicated.

Vaccine alone is not adequate for prevention of typhus, cholera or plague, and the practice of vaccination should, therefore, be considered an adjunct to control measures prescribed by the army medical staff.

HOSPITALS TO BE REIMBURSED FOR CARE OF CIVILIAN CASUALTIES

Payment for temporary hospitalization of civilians injured as the result of enemy action has been made possible by a recent agreement between Administrator Paul V. McNutt of the Federal Security Agency and Director James M. Landis of the Office of Civilian Defense. The funds have been allocated to the U. S. Public Health Service by the Federal Security Administrator from funds made available to him from the President's emergency fund. A joint memorandum embodying the details of the program has been issued by Surgeon General Thomas Parran of the U. S. Public Health Service and Dr. George Baehr, Chief Medical Officer of the Office of Civilian Defense.

The plan provides that all hospitals caring for civilian casualties in the event of air raids or other enemy action will be reimbursed by the Federal government at a rate of $3.75 a day. This is the rate of reimbursement established by the Federal Board of Hospitalization for Federal beneficiaries in government hospitals and may be changed as conditions require, it was stated.

Any hospital in the nation, voluntary or governmental, may be used as a casualty receiving hospital in the Emergency Medical Service established by the Medical Division of the Office of Civilian Defense. In addition, certain hospitals and other institutions in "safe areas" may be used as emergency base hospitals for casualties or other patients whom it may be necessary to evacuate from urban hospitals in exposed areas. The new agreement provides that Federally owned equipment may be loaned to the base hospitals and that their staffs will be supplemented by physicians of the region who will be commissioned in the reserve corps of the U. S. Public Health Service. It was emphasized that management and control of all hospitals, both local casualty receiving hospitals and emergency base hospitals, will remain the responsibility of the local or state authorities.

In the establishment of emergency base hospitals, emphasis will be placed on the relative safety of the area and the availability of existing hospitals and other institutions. Hospitals are now being surveyed for this purpose and will be classified on a basis of size, equipment and standards of operation.

It is proposed to begin immediately the organization of medical staffs for future base hospitals as hospital units affiliated with casualty hospitals similar to the affiliated general hospitals of the Army. The physicians, surgeons, specialists and dentists who are to be commissioned in the Public Health Service Reserve for service in these hospitals will receive rank, pay and allowance equivalent to those of the Medical Corps of the U. S. Army. They will be selected from older age groups, from physicians with disabilities that make them ineligible for military service and from women physicians. As far as possible, they will be assigned to service in the regions in which they live. Because they are to function as balanced professional

staffs, they will be recruited from the staffs of civilian hospitals and cleared through the Procurement and Assignment Service.

NURSING SERVICE FOR THE WAR

Nursing service is being rapidly organized to take its place in the civilian defense program. A full time nursing consultant is on duty as a member of the staff of the Medical Division of the Office of Civilian Defense in Washington and the Subcommittee on Nursing of the Health and Medical Committee of the Office of Defense Health and Welfare Services also serves as the Nursing Advisory Committee of the OCD. Through the consultant and the advisory committee the Medical Division is in contact with all Federal agencies that have nursing programs and the Nursing Council on National Defense, which represents national nursing organizations, the Red Cross and Federal agencies.

To assist the Regional Offices of Civilian Defense in interpreting the Emergency Medical Service program, field nursing consultants of the U. S. Public Health Service, the U. S. Children's Bureau and the American Red Cross have been made available for consultation. One nurse representing the Red Cross and another representing one of the other two agencies have been assigned to each state.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

Chaves County Medical Society held dinner meeting at Nickson Hotel, 7:30 p. m., April 7.

A good attendance was present to hear Dr A. W. Multhaug of El Paso, Tex., who gave an interesting discussion concerning "The Management of Stones in the Kidney and Ureter." His paper was supplemented by slides.

Drs. R. D. Haire and Earl L. Malone were accepted as members in the society.

E. W. Lander, M. D., Sec.-Treas.

The regular meeting of the McKinley County Medical Society was held on Wednesday evening, April 29, 1942, at St. Mary's Hospital, Gallup, New Mexico.

The members of the Society have notified the New Mexico Department of Health that they will give full cooperation to the immunization campaign which will be started in this community, in the near future. A special meeting was held on April 8, when an outline of procedure was formulated. Lay workers will make a house-to-house canvass of the entire county, to ascertain degree of disease immunity and the need of further inoculations. Instructions will be given each family how to obtain full protection for their children. Inoculations are to be given either by the family physician or by the local Health Department, depending on the financial circumstances of each family. A follow-up check is planned in about three months to determine the degree of cooperation.

It was voted to donate $20.00 to the National Physicians' Committee, to help in their special war-time program.

The secretary read a letter announcing that the annual meeting of the New Mexico Medical Society will be held in Santa Fe, on June 25, 26 and 27, 1942.

A colored film was shown illustrating "Thick, Split, Skin Grafts". Dr. E. A. Campbell then discussed the different methods of skin grafts and their after-care. General discussion of the subject followed.

—W. D. Anthony, M. D., Secretary

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

The staff of Hotel Dieu Sisters' Hospital met Tuesday, May 5.

The Program:

Chronic endocarditis with massive congestion of left lung.—Dr. Jumper.

Discussion.—Dr. Werley.

Congenital atresia of ileum with obstruction. —Dr. Murray.

Discussion.—Dr. Green.

The regular meeting of El Paso County Medical Society, presided over by Dr. F. O. Barrett, president, was held April 27, 1942, in the Tea Room of the Hotel Cortez.

The minutes of the previous meeting and of the Executive Committee were read and approved.

The application of Dr. Shinehi Tokuyama was unanimously disapproved.

A motion picture entitled: "Sex Hormones: Physiology, Diagnosis and Therapy" was presented by Mr. G. V. Edwards and our old friend, Mr. Diamond of Parke, Davis and Co.

Meeting adjourned.

The regular meeting of the El Paso County Medical Society, presided over by Dr. Barrett, president, was held April 13, in the Tea Room of the Hotel Cortez.

The program this week took the form of a round table discussion which was well received by the members of the Society present. The subject "Cholecystic Disease" was opened by Dr. James J. Gorman. The different phases of Cholecystic Disease were then elaborated by Drs. Rheinheimer, Hart and Green. Dr. Dutton discussed the allergic manifestations. When the meeting was thrown open for general discussion the following men took part: Drs. Waite, Hardy, Giere, Felix Miller, Cummins and Majors Mayo and Turnbull.

There was no business transacted. Meeting adjourned at 10 p. m.

Chas. F. Rennick, Secretary.

The regular meeting of El Paso County Medical Society met May 11, to hear this program:

"Symposium on the Management of Shock by Casualty Teams".

The Organization of a Shock Team —Major Wright

Blood Substitutes in Use Today —Major Queen

Surgical Principles in the Treatment of Shock.—Captain Fraekelton.

The Recognition and Treatment of Medical Shock.—Major Turnbull.

COMMUNICATIONS

Sir:

Fresh thinking is needed by our profession if we are to meet the demands which the war brings us today and the problems we will face tomorrow. We must no longer be dominated by the notion that medical practice must stay put, with as little change as possible, during and after the war. We must expect and should share in creating whatever changes are necessary to enable us to live up to our obligations in this crisis.

Organized medicine, and I use the term in its broadest sense, has new duties placed before it which it cannot ignore if it wishes to survive. Primarily it must care for the sick both in civilian life and the armed forces, but even beyond this it must help in the present emergency by rehabilitating rejected selectees and war workers, lessening the incidence and severity of illness among the workers in our war production factories and their families, and reorganize and, where necessary, relocate those physicians who are left in civilian practice so that their efforts may be most effective.

Methods for meeting these new responsibilities are not going to materialize out of thin air. They must be worked out by sober study and sane experimentation guided by intelligent thoughtful leaders with the sympathetic understanding of the rank and file of the profession. Smugness and complacency are our worst enemies now. We must not be lulled to sleep by the suggestion that since things have been all right so far they will continue to be all right. Besides, I am not so sure that things have been all right up to this point. The fact that we are in the present mess may be related to the fact that

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things have not been all right but we were too dull to realize it.

Our professional journals and the programs of our local, state and national meetings should give much larger space to these matters than they have in the past. We should encourage individuals and minorities to express their ideas, on their feet and in print.

Men must get onto our programs who will stimulate organized medicine into doing some constructive thinking about the future of the profession in this changing economic structure which surrounds us. It is just possible that it is already too late. The immediate future of the practice of medicine in America is much more closely linked to developments of methods for its wide and more equitable distribution than with the development of new techniques, in my opinion, and the sooner thought is given to this aspect of our future, the sooner will organized medicine take its proper place in winning the war and the peace which we all hope will follow.

A friend to whom I made some such remarks recently, replied, "But our Society's program is all made up now, for the rest of the season." Perhaps many programs are. But a surgeon would not hesitate to rearrange his operating schedule to make way for an "emergency ruptured ectopic" and I was not at all sure that the two situations are not really analogous. The real trouble is not that our programs but that our minds are made up. We ought to invite and be proud of a flood of differing ideas printed as articles or letters in our official journals, especially from the young—I should rather say young-minded—men. It is time to stop keeping our programs and our journals free from anything that hasn't been disinfected by our official leaders. There are enough men in our profession who would jolt us into constructive action if we gave them a chance.

Sincerely yours,

Kingsley Roberts, M. D.

Director, Medical Administrative Service

Ed.: This is the new approach of the old Peters-Cabot-Boas-Sigerist "Committee of Physicians", which stirred up all the steam a couple of years back. Remember? However, we are still in favor of free speech.)

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"SPEEDING PRODUCTION OF PHYSICIANS"

Under this title, the January 17 issue of the *Journal of the American Medical Association* carries an editorial in which doubt is cast on the wisdom of the shortened schedule adopted by the medical schools of Boston and commented on in the January 29 issue of the *New England Journal of Medicine*. Briefly, the plan provides that the three months heretofore passed in the long summer vacation be eliminated, thus allowing the entrance and the graduation of a class every nine, instead of every twelve, months. After quoting "one leading educator" to the effect that the scheme had not received mature consideration, the editorial goes on to list five difficulties that have arisen. These problems and somewhat different interpretations of them are as follows:

(1) *As an emergency measure, the immediate gain is slight.* The gain may not be great, but it is real and predictable.

(2) *With the elimination of summer vacations, some students will be forced to discontinue their medical education, owing to their inability to earn the necessary funds.*

If the Government, particularly in view of its 1942 model of economy, cannot recognize the investment value of a medical student, when physicians are needed so badly, it had better revamp the Selective Service System. Actually, the Government does appreciate the value not only of the medical student but also of the premedical student, and medical schools and colleges could make no better investment than to stake their needy students at a low rate of interest.

(3) *Prescribed R. O. T. C. field training must be discontinued.* If the R.O.T.C. cannot accommodate themselves to anything other than "business as usual," they are overlooking their own interests and responsibilities in the urgency of the moment.

(4) *The technical and teaching staffs must be greatly increased or must devote far more time to their work.* Each medical school must, of course, decide what it is able to do. So far, there has been little, if any, complaint of overwork from the staffs of schools that have adopted the shortened schedule. Furthermore, the medical schools that remain on the old schedule will be a convenience to those college students who cannot complete their premedical requirements until September.

(5) *Unless colleges and hospitals have their curriculums suitable integrated with those of medical schools, the students will lose three to six months waiting for admission as medical students or as interns.* Such a condition has always existed, and there seems to be little necessity of adding another three months each year in the summer.

That professional standards must be lessened is undeniable and inevitable. They have already been lowered by the reduction of internships to one year, and by the renunciation of the somewhat grandiose thought, recently developed, that it takes six or eight years of hospital residence to make a surgeon. To protect the premedical student, it may be necessary to trim medical-school requirements. Physicians with teaching positions will have more work to do, in addition to that already demanded by plans for air-raid protection and civilian defense. Only time can be saved now. Yesterday's leisurely standards must be abandoned. Perhaps

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the emergency is a little more real and vivid to those who live along the seacoasts than to those in Chicago. —*N. E. J. of Med.*

REFRACTIVE ERRORS

Refractive errors cannot be acquired by excessive close work, by poor lighting, by too much light, by certain types of work, or by trying on one's grandmother's glasses. Any of these, however, may bring out an error which already exists or make manifest by symptoms of eye strain a small refractive error which would be negligible under ordinary working conditions. It is true that faulty lighting can affect the eyes; for example, miner's nystagmus which results from working under very poor illumination, or photophthalmia from too intense illumination; but the condition produced in such instances is not a refractive error that can be corrected with lenses, it is a disease.

On the other hand, many patients fear they will eventually lose their sight entirely if they do not wear their glasses constantly. No one, no matter how much he needs glasses, must wear them constantly in order to save his sight. In no case will it make any difference in the refractive error whether or not the patient wears glasses. A simple refractive error is not a disease, nor does it depend on any disease of the retina or other parts of the visual apparatus. Many persons believe that serious diseases of the eye are often the result of poor glasses. Even some physicians still believe that cataracts result from eye strain.

But neither will glasses cure a disease. We know that at least one-third of all patients who consult an ophthalmologist show evidence of some pathologic condition, either local or general. Many of these persons believe that all that is needed is a good pair of glasses when, as a matter of fact, they require medical treatment. Many persons with incipient glaucoma, chronic uveitis or other pathologic conditions, which might eventually lead to blindness, postpone proper treatment for years because of ignorant or unscrupulous prescribers of glasses. Every person who complains of ocular symptoms, no

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matter how mild they may seem, should have the benefit of a thorough ophthalmologic examination by a doctor of medicine trained in ophthalmology. —*J. M. S. M. S.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

A TEXTBOOK OF INFANT FEEDING FOR STUDENTS AND PRACTITIONERS OF MEDICINE, by Williams McKim Marriott, B.S., M.D. Late Professor of Pediatrics, Washington University School of Medicine; Physician in Chief, St. Louis Children's Hospital, St. Louis. Revised by P. C. Jeans, A.B., M.D. Professor of Pediatrics, College of Medicine, State University of Iowa, Iowa City. C. V. Mosby Co., St. Louis. $5.00.

The third edition of this well-known book covers 475 pages of highly informative material on infant nutrition. The early chapters deal with fundamentals such as growth and development. The different aspects of metabolism in general are discussed clearly and concisely.

Newer information on vitamins and nutritional requirements in infancy are well covered. After this groundwork, the practical feeding of the infant is taken up in detail, not only for the breast-fed infant, but for those that require artificial feeding as well.

A number of chapters are then devoted to the nutritional deficiencies and the effect on the infant body of defects of nutrition of various kinds. Clear and concise ideas are expressed concerning practical management under various circumstances, and the newer knowledge concerning pathological and physiological chemistry as related to nutrition are discussed.

Many case records are given illustrating practical application of the fundamental theories expressed by the authors.

The last chapter on miscellaneous technic contains many valuable suggestions on handling the infant patient, particularly with reference to obtaining specimens for examination, blood transfusions, intraperitoneal injections, and so on.

The book can be recommended without reservation to those interested in feeding children. Not only pediatricians, but the general practitioner should find many helpful suggestions in this field. *L. O. Dutton.*

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IMMUNOLOGY, by Noble Pierce Sherwood, Ph.D., M.D., F.A.C.P., Professor of Bacteriology, University of Kansas, and Pathologist to the Lawrence Memorial Hospital, Lawrence, Kansas. The C. V. Mosby Co., St. Louis. Price $6.50.

This volume, a text of 638 pages designed primarily for medical students, covers the field of immunology quite adequately. The usual fundamentals of infection, host-parasite relationships, inflammation, and so on are discussed in detail. Various types of immunity are explained and illustrated and the major formation, action, and significance of antibodies are discussed.

Laboratory procedures and tests which are based on immunological phenomena are discussed in theoretical and practical detail. The volume can be well recommended as a suitable text in the field as well as furnishing a ready source for the physician who wishes to review modern concepts of these topics.

L. O. Dutton.

PRINCIPLES OF MICROBIOLOGY, by Francis E. Colien, B.S., M.S., Ph.D., F.A.P.H.A. Associate Professor of Bacteriology, and Preventive Medicine in The Creighton University School of Medicine; Lecturer in Public Health and Preventive Medicine, Creighton Memorial, St. Joseph's Hospital School of Nursing, Omaha; Director of Laboratories Health Dept., City of Omaha; Major, Sanitary Division, United States Army Medical Reserve; formerly Professor of Bacteriology and Preventive Medicine in the Central School of Nursing, Milwaukee; and Ethel J. Odegard, R.N., A.B., M.A. Instructor in Sciences Applied to Nursing, College of Saint Teresa, Winona, Minn.; formerly Director of Nursing Education in the Central School of Nursing, Milwaukee; Education Director Miami Valley Hospital School of Nursing, Dayton, Ohio. C. V. Mosby Company, St. Louis, Mo. $3.00.

In this volume the author has covered the field of medical bacteriology rather completely from the viewpoint of instructing student and graduate nurses. Historical and general fundamental aspects of bacteriology are discussed and there is a complete section devoted to the destruction of organisms, with the application of the various factors to practical nursing.

Microbic variation, the bacteriophage, classification of organisms, and infection and immunity, and hypersensitiveness are all discussed.

The latter half of the book is devoted to a discussion of the various pathogenic microorganisms, with their cultural characteristics, staining properties, pathogenicity, epidemiology, and so forth.

Text material seems to be well organized and well illustrated, and on the whole, the book is well done, covering a total of 444 pages.

It is the reviewer's impression that the volume covers more detail than is generally required in schools of nursing. It should serve as

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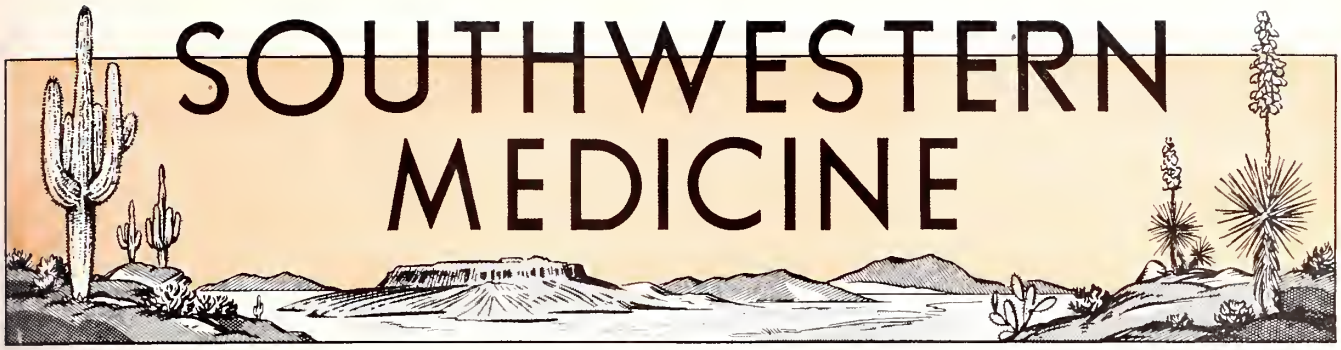

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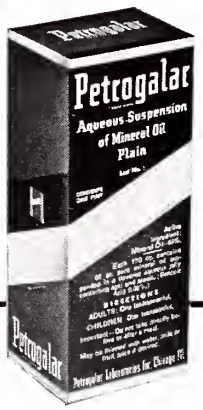

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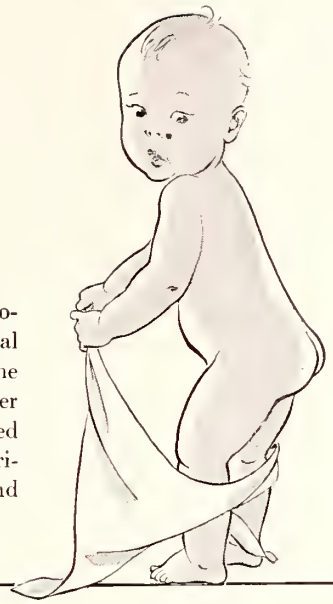

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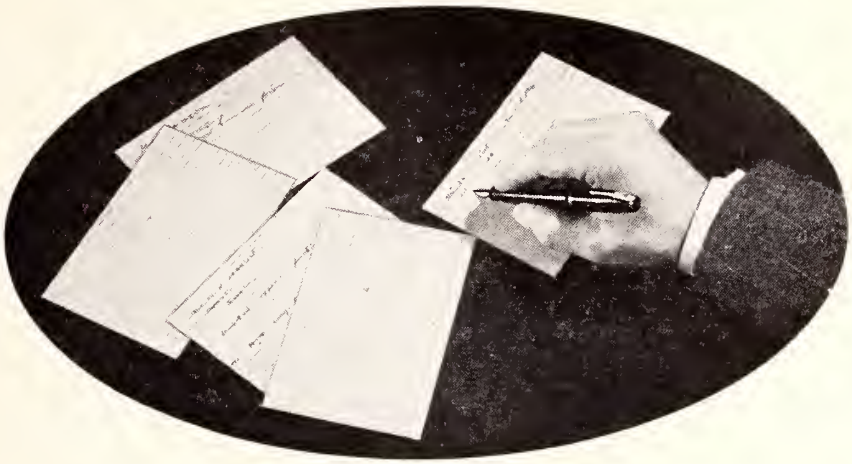

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**J.A.M.A., 93:1110—October 12, 1929*
Brückner, H.—Die Biochemie des Tabaks, 1936

***The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*

****ibid. p. 5*

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MEDICINE SHOW MAN—1942

Hustlin' Hugh Cabot is riding the bush and boloney eireuit again, offering the same old show, with just slight changes in the patter. Hang on to your hats, and here we go, away in a flash to the medicine show. Every spring the season doth bring strange noises and risings of the sap. Lo, it is the melting of the snow that causes the mullarkey to flow, in divers plaees.

Of some 2,000,000 young Americans examined for the draft, nearly 1,000,000 have to date been rejeeted. From that fact, Dr. Hugh Cabot (the answer man) builds up the most malapropos, astonishing set of notions that these amused eyes have seen in many a hunting moon. He says in the Survey Graphic (Mareh, 1942), that this calls for far-reaching reforms in the distribution of medieal care. Now, watch the seare teehnique of the medieine man: we are in a soeial revolution, and if this revolution is to avoid ehaos and bloodshed a profound revolution in our thinking in regard to medieal care is inevitable! *(Beware of those pains over the kidney and bladder. Do you have a full feeling after eating? Are you irregular? Do you bloat? Spots before the eyes?)*

How does this good man think we can avoid this ehaos and bloodshed? Why, it's simple—here's the remedy: have specialized staffs of Army and Navy personnel rehabilitate the eripples, beeause it will not be satisfaetory to refer these men to their family doetor or dentist, beeause it is diffieult to supervise the quality of the work, or to adjust the costs! Anyway, it goes on, most of the remediable defeets found in the draftees spring from inability to pay the bills their eorreetion would incur!! *(sold another bottle, doctor.)* The doetor says that most of the rehabilitation work will fall in the fields of dentistry, repair of hernia and the eure of venereal diseases. That is true, according to latest studies. Does our friend know of the many eases of dental defects that refuse rehabilitation lest they be drafted? Does he know that dentistry is not able yet to prevent the oeeurrence of tooth deeay with any surety—even among the class of people who could afford to pay a dentist a thousand dollars a visit? Then why doesn't he say so? Isn't he aware of the proerastination and sheer laziness of many folks, who would need hog-tying to get them into a dentist's parlor? Then why imply that inability to pay the dentist's bills has led to most remediable defects? *(Is the pretty brown medicine only caramel and water?)*

As to the repair of hernia—well, ean the doctor say that these cases ean be absolutely eured, by even the eleverest surgery? Cured for the task of squatting in an offiee, maybe, but for the job of marehing, shooting, lifting, flying, sticking bayonets in guts of Japs?? Besides, doesn't the doctor know that not even in the armed services ean a man be foreed to consent to an operation? Or, dictator-fashion, doesn't he eare? Would he submit to eompulsory surgery himself? Or would he have his staff group squirt the hernia with the injeetion technique? *(6 bottles for $5.00.)*

And this venereal business—how does he propose to force these patients through the doors of his group to get the "proper treatment?" Even with the threat of eourt-martial for eoneealment, numbers of service men go to the advertising quaek and the corner druggist. Those men, along with thousands of eivilians, do not refuse to get competent treatment because of the eost, but for a hat-full of other reasons. But maybe the doctor will rar' back and pass a law,

and then all venereal victims will have to come to his approved groups.

(Not many bottles left, doctor.)

What does Col. Leonard Rowntree, Chief of Medical Division, Selective Service System say? Well, among other things, he reveals[1] that a study of young men in college (where there is located a splendid, complete Student Health Service) shows the same percentage of defects as is to be found among those unfortunate lads on the outside who have to depend on their family doctor and dentist! So, group medicine is the answer, eh? Colonel Rowntree further tells of the thousands rejected because of mild degrees of weight variations. Does Doctor Cabot offer that the group system of medicine would have worked wonders here? He implies that even this absurd business is the fault of America's family doctors.

Those who don't agree with Doctor Cabot are "intellectually blind" *(madam, you needn't suffer any more)*. Well, it's nice that America has a few clear-visioned medicine men. But, by jeepers, most Americans will still scrap against the idea of forcible evangelization at the hands of a self-appointed group of hosannah-hollerers.

The follies of '42 is the same old show of state-supported group medicine, with the gals in the back row still needing a retouching with peroxide, and the master of ceremonies cracking the same stale gags lifted from the Police Gazette and the Youth's Companion. This time there is an off-stage rumble of musketry, and that's the only difference.

The Answer Man still discounts the inherent good sense of the American public. The current Spring tour is just about stranded in Podunk, and the cast will have to thumb a ride back to the big town.

(1) Rowntree, Leonard G., The College Health Program and National Defense Optimum for all students. Journal-Lancet 62: 96, March (1942).

American Medicine and the National Emergency

HENRY STANLEY ROGERS, M. D.
Petaluma, Calif.

THE nation is at war.

It is a total war to which we are committed.

It is of such scope and of such proportions that no single intellect can comprehend fully its final implications.

It is a war of conquest.

Yet, continents and oceans, market and trade routes are mere incidentals.

Germans and Japanese, in defiance of every Christian concept, seek literally to enslave the two thousand million human beings who inhabit the earth.

America fights permanently to establish what we believe to be enternal verities; namely, "that all men are created equal; that they are endowed by their Creator with certain inalienable rights: that among these are life, liberty and the pursuit of happiness".

It is truly a world war to which our great Civil War and World War I were mere preliminary skirmishes paving the way for this limitless and final conflict.

We shall win the war!

We shall not win it until we shall have mobilized the last man, the last resource and the last horse power of energy and placed them, if necessary, on the altar of sacrifice.

To winning this war the medical profession pledges its energies and its efforts without qualification or reservation!

MEDICINE'S ACTIVITIES

Organized Medicine, at an earlier date and to a greater degree than any other nation-wide group, recognized the inevitability of world wide conflict.

In June of 1940 the House of Delegates of the American Medical Association established the Committee on Medical Preparedness under the Chairmanship of Doctor Irvin Abell.

There was no waiting for a declaration of hostilities. The Committee formulated plans for a survey of medical abilities and skills such as was never before undertaken. In July of 1940 this Committee began compiling an inventory of the medical resources of a nation of 130 million people. Continuously since, the almost incomprehensibly detailed task has been in progress.

On September 16, 1940, President Roosevelt

Address by Past President of the California Medical Association, before the Arizona State Medical Association at the Fifty-first Annual Meeting, held in Prescott, Ariz., May 25-29, 1942.

signed the Selective Service Act and it became the law of the land. It was recognized fully that the need was for personnel for wholly mechanized forces.

Only the mentally and physically near-perfect could qualify to drive the tanks, man the guns, pilot the bombers and pursuit planes in this total war.

On October 16th began the registration of all American men between the ages of twenty-one and thirty-five. On October 29th a number was drawn from an open-top glass container. The process of selecting the physically and mentally fit for an armed force, which may eventually number more than six million fighting men, was under way.

Physicians volunteered their services to man the examining boards in every area in the state.

On December 7, 1941—fatal date—the traitorous Japanese attacked Pearl Harbor.

Before December 7th more than 25,500 physicians, working on more than 6,400 local draft boards, had examined approximately two million five hundred thousand men.

During this period it was essential to expand the nation's industrial plant and equipment limitlessly to provide planes and ships, trucks and tanks, guns and ammunition. Thousands of millions of dollars were expended by the Federal Government. Other thousands of millions were made available by the government to private industry for this purpose. These expenditures are not questioned. Had the amounts been double or treble, they could be justified on the basis of the all-important emergency need.

HOWEVER, IT IS A FACT THAT AMERICAN PHYSICIANS, WITHOUT PROSPECT OR EVEN THOUGHT OF REWARD, CONTRIBUTED THEIR SERVICES TO AN ESTIMATED VALUE OF NEARLY TWENTY-FIVE MILLION DOLLARS. NOT ONE DOLLAR OF RECOMPENSE WAS ASKED OR RECEIVED.

From the scientific standpoint, the efforts were, in all likelihood, even more important. "*War Medicine*", a new medical journal under the editorship of Doctor Morris Fishbein, was established. With characteristic thoroughness and efficiency the medical experiences and discoveries of the peoples actually at war were assembled, edited and made available to the medical profession.

In October, 1941, the medical procurement and assignment service was established by presidential executive order. This agency operates under the office for emergency management, office of defense health and welfare services. It is understood that, to meet the ultimate needs, every physician may have to be called upon to contribute to the full extent of his individual capacity.

The procurement and assignment service has established headquarters for sub-committees in each of the nine military corps areas in the United States. These corps area committees are supplemented by state committees in every state. Using as a foundation the findings of the committee on medical preparedness, the medical procurement and assignment service is in a position to meet our rapidly expanding military medical needs, provide for adequate civilian health and medical services, and insure an irreducible minimum of sacrifice and dislocation.

American Medicine anticipated this present need. It has established a new place for itself—through service.

The weak spot in American Medicine is in its singleness of purpose. Its greatest danger lies in the exclusiveness of its devotion to scientific improvement and technical effectiveness.

Now, after Federal prosecution for criminal conspiracy, the real threat of the Wagner National Health Bill, and the menace of possible enactment of compulsory health insurance, this statement is fairly well understood.

Under conditions now prevailing, the urge to "limit of capacity service" is irresistible. This introduces a new factor. Today, American medicine's greatest danger lies in the possibility of refusing or failing to keep in mind medicine's fundamental concepts during a period of abnormal crisis.

STATUS OF AMERICAN MEDICINE

Medicine must remember—must be made to remember—the fundamental factors that are responsible for its present place of prominence. Its scientific achievement, its technical effectiveness, its capacity to anticipate this great emergency need, its ability to make the contribution it has made, and will make, in war effort are the result of conditions and principles under which it has been permitted to function.

The war in which we are engaged is as limitless as the farthermost reaches of the world in

which we live. It is a war of ideologies. Our only "CAUSE" is that of acknowledgment of the sanctity of human personality.

Possibly Doctors of Medicine have not fully understood nor been concerned about the concepts of basic human right. They have invariably practiced it. The basic tenet of American medicine has been that—"where there was disease a life was the issue. It mattered not whether prince or pauper was involved." If we are to make progress this principle must be preserved and sanctified. The whole of men's concepts are in flux. This basic tenet may be lost or sacrificed unless we make a task of preserving it.

It is essential that, at whatever cost, this war be won. *IT WILL BE WON.* However, the form and the design of a post-war world will be determined by the steps taken now and during the period of the conflict to preserve intact the important elements of the principle for which the war is waged.

MEDICINE'S FUTURE

What position will medicine occupy in the post-war world?

We are confronted with war. We are faced with insistent, compelling, all-important necessity of creating an adequate defense mechanism and organization. We are forced to admit the necessity of certain centralizations of power to insure the most efficient and effective operation of our industrial plant and productive equipment. These are realities of the present.

It is essential that we understand that, to the extent we move toward a form of governmental control—will we affect the practice of medicine in the United States. Under any form of governmental, social and economic structure, medicine must and will occupy merely its relative place.

If the independence of medicine, our doctor and patient relationship, and our pattern of medical practice are to be preserved, we must preserve the principles underlying our free institutions.

There are no changes in the situation save the greatly increased tempo and the actualities of conflict.

Actually conducting the war are political administrations. Notwithstanding Pearl Harbor, the fall of Hongkong, the siege of Singapore, MacArthur's heroic defense, the Libyan battles and the retreat of Germans on the Russian front, the political aspirants are seeking nominations of their parties for senatorships and congressmen. Within the Congress Senators and Congressmen are vying with each other for places of power and authority. Within the administration, cabinet members and administrative officials are constantly forcing their claims for consideration or preferment. This is as it should be. However, it must constantly be remembered that actions which may adversely affect medicine's effectiveness may result from political decisions.

Final political decisions are based upon politicians' beliefs of the understanding and convictions of the public opinion. In this sphere medicine has an important, probably a decisive role to play.

Dr. Edward H. Cary said: "The medical profession now represents the only important groups in the United States which, while harassed from within and without, has shown no slightest signs of capitulation or even of retreat."

On the basis of this fact, it has automatically placed itself in the position of an intellectual leadership of those individuals, groups and institutions which seek to preserve the important elements of individual freedom and initiative and the principle of private enterprise.

"If we live up to this opportunity and the serious responsibility it entails, the physicians of this country can—while preserving the independence of American medicine—most importantly and vitally serve their country during its period of crisis and greatest stress."

Practically, unlimited resources are available. The production machinery is being provided to deliver the ships, tanks and aircraft, the guns and ammunition in a never-ending stream. These are valueless without men—healthy men. We have men. Their quality and their final effectiveness is wholly dependent upon their understanding of and their convictions relating to the fundamental rightness of our cause. There would be no gain—there would be irretrievable loss—if the war is WON and there is failure in taking steps to insure the peace. There must be no shadow of doubt as to our undertaking to establish the principles of "individual human right." In addition to its technical tasks, American medicine must assume its fair share of this—the greatest single responsibility.

In January, 1939, American medicine was se-

riously menaced. It was facing criminal prosecution in Federal Courts, threatened with destructive and restraining legislation, and was the victim of vicious propaganda designed to destroy the confidence of the public in its motives and its effectiveness. Today medicine is respected. It is being accorded a confidence and an authority which enables it to render the most important single service in the all encompassing effort to win—the World War.

MEDICINE'S PLEDGE

The medical profession pledges itself to the prosecution of three vital tasks:

1 To use its knowledge, its machinery, its strengths to aid—without qualification—in winning the war.

2 To utilize to full capacity its contacts, its resources, its facilities, its proven methods and its developed techniques to the end that:

a basic issues and vital principles be clearly defined and be not lost or obscured in the haze of emotional reactions;

b morale be maintained;

c peace, in accord with fundamental concepts, may be won.

3 To maintain constantly *the alert* and be continuously active in necessary and important spheres in an unlimited effort to preserve for the medical profession the independence and freedom essential to its continued progress and greatest effectiveness in public service.

[Ed: The appended resolutions were handed in as a part of this address, although not read at the time of its delivery.]

RESOLUTION OF THE MASSACHUSETTS STATE MEDICAL SOCIETY

February 4th, 1942

WHEREAS, It has come to the attention of the Council of the Massachusetts Medical Society that the Social Security Department of the United States Government seems to contemplate a petition to the Congress of the United States for legislation which would extend the present social security coverage so as to include approximately 45,000,000 to 116,000,000 of the American people;

WHEREAS, It seems to be the intention of the petitioner to have included in this legislation an extension of the provisions of the present Social Security Law so as to provide for the hospitalization of approximately 45,000,000 to 116,000,000 American people;

WHEREAS, It seems to be the intent of this legislation to finance this extension, in the ease of the employed, by a tax of one per cent on payrolls, one-half of which is to be paid by the employer and one-half as a deduction from wages;

WHEREAS, In the ease of those who are self-employed, it has been intimated that it will be the intent of this legislation to finance this extension by adding to already existing income taxes an additional tax of one per cent up to an amount which will represent one per cent of $3000;

WHEREAS, The people of these United States are now heavily burdened and will be further burdened by our war effort;

WHEREAS, This is the first step in the direction of the complete control of the care of the sick by Government; and

WHEREAS, Wherever such control has existed the quality of medical care has suffered; therefore, be it

RESOLVED, That the Council of the Massachusetts Medical Society in regular session, February 4, 1942, does hereby oppose any such extension of the present Social Security Law as is herein outlined.

TENTATIVE RESOLUTION PROPOSAL TO BE INTRODUCED AT AMA MEETING HOUSE OF DELEGATES, ATLANTIC CITY

WHEREAS, The physicians of the United States, through the American Medical Association, unselfishly have devoted time, energy and continuously greater ability to building an organization structure truly nation-wide in scope, serving every town, village and hamlet in this country and devoted to the vital task of providing a more effective and a more generally available medical service than is provided anywhere else in the world; and,

WHEREAS, These efforts, over a period of nearly one hundred years, have developed American Medicine to the point of a general recognition of its world wide leadership; and,

WHEREAS, This unparallelled growth and this unusual effectiveness are the results of the high level of educational requirements, the high standard of ethics that has been maintained and the continuous safeguarding of the relationship between the physician and the patient; and

WHEREAS, We are now passing through a period of world wide revolutionary change in social, economic and philosophic concepts; and the general public has been and is subjected to a vast educational propaganda, some of which tends to discredit the American doctor and to destroy confidence in the effectiveness of American Medicine and in our system of distributing medical care; and,

WHEREAS, Preservation of the vital principles responsible for Medicine's past progress,

its present effectiveness and its ability to most advantageously serve the public make it essential that citizens understand the basic facts in connection with American Medicine's methods, growth, achievements, the factors responsible for its superiority and the extent to which the people have been the beneficiaries of the profession's intensive and constructive efforts; therefore be it

RESOLVED, That we register our approval of the National Physicians' Committee for the Extension of Medical Service, commend the Board of Trustees and the Management of this institution for the efforts they have made to enlighten the general public in connection with American Medicine's methods, progress and achievements and in pointing out that the public has a vital interest in the final result; and be it further

RESOLVED, That it be declared the policy of this House of Delegates to encourage this effort and similar efforts with identical purposes.

Obstructive Jaundice

VERNE C. HUNT, M. D.
Los Angeles, California

THE deposition of bile pigment in the skin, sclera, mucous membranes, and body fluids is an important sign of disturbed physiology. When such deposition of bile pigment is manifested clinically by jaundice, attention is immediately directed to those hepatic, biliary, pancreatic, and splenic lesions which in one way or another alter the mechanism by which bile pigment is formed or which retard or withhold the excretion of bilirubin from the liver.

The significance of jaundice is readily appreciated if one bears in mind the idea that within the body there occurs a normal process of constant destruction of red blood cells, with the liberation of hemoglobin which is converted into bilirubin; not in the epithelial cells of the liver, but in the reticulo-endothelial system, specifically in the Kupffer cells. An excess of bilirubin in the body fluids with resultant jaundice of varying degree, is usually due to one of several causes: (1) an accelerated rate of destruction of red blood cells and the production of bilirubin in excess of the capacity of the liver to excrete it, (2) injury to the hepatic cells of the liver by infections or toxic agents, with a consequent decrease of the excretory capacity of the liver, or (3) mechanical interference within the bile passages to the free flow of bile into the intestinal tract. According to McNee, these varieties of jaundice may be designated respectively as hemolytic, hepatogenous, and obstructive.

DIAGNOSIS OF TYPES OF JAUNDICE

Not infrequently considerable difficulty is experienced in differentiating between non-obstructive or hepatogenous type of jaundice and obstructive jaundice. In order that the surgeon may avoid surgical exploration in those instances of jaundice where surgical procedures are not only of no avail but at times are actually harmful, it is incumbent upon him that he have orderly, organized ideas pertaining to the value of clinical data and to the relative merit of laboratory aids upon which a policy may be established in the selection of patients in whom surgical procedures are reasonably indicated. In general, it may be stated that hepatogenous jaundice is usually painless, but the corollary does not follow that pain always characterizes obstructive jaundice. Other data gleaned from the carefully procured history and physical examination may prove of value in differentiating one type of jaundice from another, particularly as regards infections and toxic agents prone to produce parenchymatous hepatic disease. Chronicity, heredity, abnormal fragility of the red blood cells, and enlargement of the spleen characterize hemolytic icterus. The size of the liver in relation to the degree of jaundice and its duration oftentimes provides material aid in differentiating one type of jaundice from another. A palpable distended gallbladder in the jaundiced patient, in accordance with Curvoisier's law, quickly and with a high degree of certainty establishes the diagnosis of neoplastic obstruction in the terminal portion of the common duct. The determination of the patency of the bile passages constitutes a most important item in the investigation of the jaundiced patient. It should be borne in mind in the determination of the bile content of the stool through its color and the chemical test for urobilin that the findings may lead to error as pertains to

Read by invitation at the Fifty-first Annual Meeting of the Arizona State Medical Association, May 25-29, 1942, at Prescott, Arizona.

the patency of the bile passages. Likewise, faulty interpretation of the findings in the duodenal content following intubation of the duodenum not infrequently leads to error in the determination of the patency of the bile ducts. In the absence of bile pigment the duodenal content is a clear, colorless mucoid and odorless substance. Such duodenal content, usually encountered in neoplastic common duct obstruction, is not infrequently recovered from the duodenum in the jaundiced patient when the bile ducts are entirely patent. It is believed that the polygonal cells of the liver are primarily concerned with the mechanism of excreting bile pigment, through which bilirubin is transferred from the blood to bile. Furthermore, parenchymatous disease of a severe grade in non-obstructive jaundice abolishes the excretory function as indicated by the absence of bile pigment from the recovered duodenal content. That sufficient parenchymatous hepatic disease may occur to interfere with the function of the liver in its bile pigment metabolism is attested by the so-called white bile or bile entirely devoid of pigment encountered in certain instances of prolonged complete obstruction of the bile passages. It should likewise be carried in mind that many obstructing lesions of the bile passages, while obstructing sufficiently to interfere with the free passage of bile into the intestine and to produce jaundice, may allow some bile to pass into the duodenum, to be recovered on duodenal intubation. In other words, the significance of the presence or absence of bile pigment in the duodenum may be rated only in relation to other clinical and laboratory data.

The bilirubin content of the blood has been used extensively as a means of differentiating one type of jaundice from another. Certainly those who continue to place reliance upon this test for differential diagnostic purposes are prone to experience frequent diagnostic error. Experience with the various procedures for its estimation has confirmed the idea that the bilirubin content serves reliably in no way whatsoever as an aid in differentiating the non-obstructive or hepatogenous jaundice from the obstructive jaundice. For practical purposes the icteric index and the indirect Van den Bergh reaction provide methods of ascertaining the depth of jaundice, and they may serve to indicate the course of the jaundice.

Occasionally it is impossible to distinguish accurately between hepatogenous jaundice and obstructive jaundice by clinical methods and laboratory data. There are certain instances in which the weight of the evidence favors the diagnosis of hepatogenous jaundice. Doubt remains, however, regarding the probability of a ductal lesion, and the idea of surgical intervention may well be entertained. Bloomfield has stated that in those cases where the weight of the evidence favors a hepatogenous type of jaundice the surgeon who intervenes after a short period of observation will operate ill-advisedly on many patients who would later recover spontaneously. In order to be sure that one is not dealing with a spontaneously resolvable icterus he has recommended that one should wait in doubtful cases for at least four and perhaps five weeks before giving serious consideration to surgical intervention. Now in the substance of this statement many will agree. I should add the reservation that when such doubt exists it should be supported by conclusive evidence that the bile passages are patent during the period of observation. Too frequently in the past the jaundiced patient has been subjected to repeated and prolonged differential diagnostic seances resulting in assumed clinical diagnostic accuracy and assumed futility of therapeutic endeavor, and has therefore been denied surgical exploration. Necropsy findings later have disclosed common duct stone or an operable neoplastic obstruction of the common duct. In the differential diagnosis of the various types of jaundice the matter of paramount importance is not the question of hepatogenous or non-obstructive jaundice; instead, it is the question of whether or not the patient has an obstructive jaundice. Hepatogenous jaundice is not a surgical disease. Obstructive jaundice is an entirely different matter, and undue observation of the jaundiced patient and denial of relatively early surgical exploration may not be wisely indulged in unless conclusive clinical evidence is at hand that an obstructing common duct lesion does not exist. The relative safety with which the jaundiced patient may be operated upon today justifies the policy of surgical exploration in every case in which any idea may be legitimately entertained that an obstructive lesion exists.

EFFECTS OF OBSTRUCTIVE JAUNDICE

To unduly defer surgical intervention in ob-

structive jaundice seldom accomplished a purpose and usually serves only to promote and intensify those changes which occur within the liver and alter its various functions. The rapidity with which hepatic injury and disturbed function of the liver occur is somewhat dependent upon the degree of obstruction and whether or not any patency of the bile passages persists. The higher the degree of obstruction, the more rapid and severe the hepatic injury. Benign ductal lesions tend to maintain a degree of patency of the bile ducts, while neoplastic obstruction is prone to become complete. Weir has stated that the bile passages were partially patent in 87 per cent of cases of stone in the common duct, in 70 per cent of the cases of stricture of the common duct, and is but 15 per cent of the cases of obstructive jaundice due to carcinoma of the head of the pancreas.

In obstructive jaundice carbohydrate, lipid, and protein metabolism are materially altered. It has been repeatedly demonstrated that the glycogen stores in the liver are greatly decreased in the jaundiced patient, which has led to the widely adopted practice of preoperative ingestion and administration of carbohydrate, which unquestionably possesses much merit. However, biopsies of the liver have uniformly showed that the liver contains a large amount of fat in the presence of jaundice. The problem then in the preoperative preparation of the jaundiced patient is to decrease the lipid deposits in the liver as much and as rapidly as possible. Raydin, among others, has presented conclusive evidence that this is accomplished most effectively by a diet high both in protein and carbohydrates to the exclusion of fats. Elliason has recommended a diet in which 14 per cent of the calories are supplied by protein. The problem of hepatic insufficiency with which the internist has to deal in the various types of hepatogenous jaundice, and which is of extreme importance to the surgeon in his preoperative and postoperative management, is a complex one. Only during recent years has hypoproteinemia been recognized as an important factor in hepatic insufficiency as it occurs in the jaundiced patient. Clinical and experimental data are now at hand to indicate conclusively that a liver high in fat and low in protein is highly susceptible to hepatic insufficiency and failure. It is worthy of repetition and emphasis that a diet high in carbohydrates and proteins is the most effective in conditioning the liver with adequate glycogen, high protein concentration, and a low lipid content, through which postoperative lethal hepatic insufficiency may be obviated.

Unquestionably the most important single contribution to the safety of surgical procedures upon the biliary tract in the presence of obstructive jaundice has been the control of the hemorrhagic tendency. Vitamin K, when administered orally with bile salts has proved specific in restoring normal plasma prothrombin content and normal prothrombin time in obstructive jaundice, and may be administered postoperatively for as long a time as a tendency to prothrombin deficiency exists, thereby eliminating the hazard of the hemorrhagic tendency in operations for the relief of obstructive jaundice. Preparations of Vitamin K are available for intravenous and subcutaneous or intramuscular use when oral administration is not practical or when rapid restoration of prothrombin is essential.

The risk of surgical procedures for the relief of obstructive jaundice has been materially reduced during recent years as the result of modern methods for the rehabilitation of patients in whom marked hepatic injury has been sustained and biliary cirrhosis has occurred, and in whom plasma prothrombin deficiency has developed. Certain operations which formerly were followed by a formidable if not prohibitive mortality rate may be performed today with a reasonable degree of safety.

In view of the relative safety with which operations may be performed for the various obstructing lesions of the common duct it is entirely in order that one adopt the policy of surgical exploration in practically all cases of obstructive jaundice. Only through such a policy may the greatest accuracy be achieved in ascertaining the true nature of the obstruction. While an accurate preoperative diagnosis by clinical methods can be made in the majority of cases, there still remains a certain percentage of instances in which by clinical methods the true nature of the obstruction cannot be ascertained. It is worthy of emphasis that in these instances benign lesions may be differentiated from neoplastic disease only through surgical exploration. While it is well known that stone in the common dust is the most frequent cause of obstructive jaundice, the fact is not generally appreciated that calculous obstruction of the com-

mon duct in a considerable percentage of patients is not clinically characterized by biliary colic or pain of greater severity than that frequently experienced by patients in whom neoplastic obstruction has occurred. On a number of occasions we have found at operation one or more large stones in the common duct, when the preoperative diagnosis of neoplastic obstruction was strongly supported by the clinical data. Likewise, the severity and character of the pain in neoplastic obstructive jaundice have caused us to make a preoperative diagnosis of common duct stone on a number of occasions. I should like to emphasize the fact that no one can rely implicitly upon the clinical data.

CALCULOUS DISEASE OF THE DUCTS

Without doubt many of the cases of unsatisfactory result following cholecystectomy for calculous disease of the gallbladder are due to the persistence of one or more stones in the common or hepatic ducts, which had they been searched for through an opening in the common duct usually could have been removed simultaneously with the gallbladder. Clinically one may not always suspect the presence of stones in the common or hepatic ducts unless jaundice exists or has existed at some time prior to operation. Common duct stones do not always produce obstruction; consequently their presence is not always characterized clinically by jaundice. In my experience, jaundice has not been manifested in approximately 25 per cent of the cases of hepatic or common duct stone. According to Allen, stones were found in the ducts in 20.7 per cent of the patients upon whom cholecystectomy was performed during a four-year period at the Massachusetts General Hospital. In our own work at St. Vincent's Hospital during the past four years the common duct has been opened and explored in 42 per cent of the cases of calculous disease of the gallbladder, and one or more stones have been recovered from the common or hepatic ducts in nearly one-half of these cases, or 19 per cent of the cases of biliary calculous disease. From our own experience we have no reason to believe that exploration of the interior of the common duct, instituted in accordance with definite indications, simultaneously with cholecystectomy even though unproductive of stones, contributes to the risk or mortality rate of cholecystectomy for calculous disease of the gallbladder. This statement, however, does not apply to cholecystectomy for acute cholecystitis. The problem of a common or hepatic duct stone associated with acute cholecystitis is entirely another matter. In that problem, the question of early or deferred operation for acute cholecystitis is brought to bear, and the answer may be available only in terms of the individual patient and the surgeon rather than in terms of an accepted or established policy in the management of acute cholecystitis.

Certain problems and difficulties confront the surgeon in the removal of common and hepatic duct stones. When a single unimpacted stone in the common duct is present it is usually readily removed. The impacted stone at the ampulla is not infrequently removed with considerable difficulty, and at times one must resort to its transduodenal removal. Multiplicity of stones in the common and hepatic ducts, particularly when obstructive jaundice has occurred repeatedly or has been of long standing and has resulted in marked dilatation of the intrahepatic ducts, at times provides uncertainty as to whether or not all stones have been removed. Under such circumstances one may always be certain of the complete removal of stones from the common duct itself, and staisfy one's self regarding the patency of the ampulla of Vater. However, there is no method by which one may provide certainty that one or more stones do not remain elusive—high in the dilated intrahepatic ducts. Within the month we have lost a patient from bilateral suppurative parotitis following a persistent biliary fistula which developed after I had performed a cholecystectomy in the presence of obstructive jaundice of long standing, and had simultaneously removed 58 stones from the common and hepatic ducts. At autopsy a single stone obstructed the terminal portion of the common duct, which presumably had passed down from one or another of the hugely dilated intrahepatic ducts subsequent to the removal of the T-tube on the twelfth postoperative day.

Cholangiographic studies as they are made at the operating table usually are not necessary to determine the patency of the common duct and the ampulla of Vater; they may not be relied upon to provide assurance that all stones have been removed from the intrahepatic ducts. Postoperative cholangiograms usually serve to provide reliable information regarding the patency of the common duct and ampulla of Vater.

STRICTURE OF THE COMMON OR HEPATIC DUCT

Even though congenital atresia of the extrahepatic bile passages is occasionally encountered and constitutes a major surgical problem, I wish to refer briefly and only to postoperative stricture of the bile passages. The sequelae of accidental division of one of these ductal structures, excision of a segment of the duct, or its inclusion in a suture or ligature in the course of choleeystectomy, are such that, irrespective of surgical repair of the injury, many patients in whom such injury has been sustained are destined to a life of ill health characterized by recurrent fever, chills, and jaundice. The prevention of such injury may be faeilitated only through possession of an intimate knowledge of the anomalies of the ductal and vascular structures and as these structures may be altered in their appearanee and in their anatomie relationships in the presence of intra and extra biliary tract disease. Visualization of the ductal structures during the course of cholecystectomy provides the means by whieh injury to and subsequent stricture of ducts can be prevented. Once injury has been sustained and stricture develops, the method of repair whieh may be utilized is an individual matter as pertains to the nature and location of the stricture and as to whether or not an external biliary fistula exists or has been established. Without discussing at this time the various surgical procedures that may be employed to repair the injury to the ductal structures, or that may provide suitable passage of bile from the liver to the intestinal tract, it may be stated that the safety of these surgical procedures through modern preoperative treatment and control of the hemorrhagic tendency has been materially enhanced. In general it may be stated that the transplantation of an existing or previously established biliary fistula into the upper gastro-intestinal tract has not been followed by sufficiently satisfactory results to remain a desirable operation. Anastomotic restoration of ductal duodenal continuity over a tube just above the stricture or at the hilus of the liver when it can be accomplished is usually followed by results superior to other reconstructive procedures.

NEOPLASTIC OBSTRUCTION OF THE COMMON DUCT

Primary carcinoma of the hepatic duct, with or without involvement of the cystic duct and gallbladder, remains for the most part an inoperable lesion. Neoplastic obstruction of the common duct is frequently not only operable but is curable. A year ago I presented a collective review of 124 cases (acerued since 1898, when Halstead performed the first operation) of carcinoma of the ampulla of Vater and periampullary carcinoma in which radical extirpation of the lesion had been carried out, with a gross operative mortality rate of 30.6 per cent. During the last fifteen years the mortality rate in 66 cases was reduced to 21 per cent. We have now operated upon five cases of carcinoma of the ampulla of Vater, producing obstructive jaundice, without mortality; in three of these the radical operation of total duodenectomy with resection of the head of the pancreas in one stage was performed. Brunschwig, in 1937, carried out this radical operation in two stages for the first time in carcinoma of the head of the pancreas. Recently Whipple stated that he had collected 64 cases of periampullary carcinoma and carcinoma of the head of the pancreas which had been operated upon in this country and abroad since 1935 when Whipple, Parsons and Mullins described the radical en bloc surgical procedure for the extirpation of neoplastic disease in the periampullary region of the duodenum and head of the pancreas. Inasmuch as a fair degree of operability has been established in malignant lesions of the terminal portion of the common duct and in periampullary neoplastic disease the recommendation of early surgical exploration in all eases of suspected neoplastic obstruetion of the terminal portion of the common duct is entirely warranted.

Usefulness of Laughter

E. FORREST BOYD, M. D.

THE lightning-like changes of national boundaries, national ideals, moral values, and, in faet, the shattering of all of the foundations of the past has left the peoples of the world in a quagmire of dismay, doubt, perplexity, and depression. So-called assets and liabilities and

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skittering around like the ball on a roulette wheel, and many people have lost sight of the fact that man's chief assets are health, honesty, and spiritual confidenee and ideals, all surmounted by the supreme asset—his soul. Among the faetors that we are seeking today are ealmness, steadiness, equanimity, and relaxation.

If ever the world was a melting pot it is now. We have thrown into the planetary hopper the power and might of the world's greatest maehines of all sorts, the products of the mental giants, pseudo-mental giants, "cracked pots", and those motivated by selfish ideals. What will be the result of this fused mass as the flux passes through the refining and stamping proeess of whatsoever power that ultimately predominates?

With all this we have the terrible speed eomplex with whieh the entire world is imbued. It has been said that if we miss one section of a revolving door the day is ruined. We may well ask ourselves what the new values will mean after the crucible with its new products whieh has been heated by the factors of greed, lust, and selfishness has cooled down to the level of sane thinking.

The pages of history from earliest recorded times down to the present are shot through and through with searches for happiness, peace of mind, and eontentment, and even the unwritten legends of the misty past were, in many cases, infiltrated with the same motives. The Bible has mueh to say about laughter—a merry heart, and also about the laugh of fools.*

Then again we have reference to Court Jesters whose business it was to create laughter and in their way promote better living and aeting in the routine of life.

LIFE AND TIME

At the base or seat of all happiness is the ability to laugh—to see the ridiculous in a situation as well as the important details, and this is dependent upon the ability to reason. We should profit by our mistakes, but, at the same time, we should be able to laugh at ourselves. It is natural for most people to take themselves too seriously, and we should remind ourselves that it is said that over 50% of the inmates of insane asylums have delusions of grandeur. It therefore behooves us to shy away from conceit and selfishness which, in many instances, are short cuts to the asylum. Adulation has done a great deal of damage to humanity from many angles, and especially in the fact that it has caused man and his acts to assume distorted and untruthful proportions from the phase of importanee. We have but to condense time about one million times to remind ourselves in that new perspective or relationship that a few days, at most about a year ago, men became quite clever with stieks and stones as aids to better protection and more comfortable living. Yesterday the Greeks came along with their development of science (also a boon to modern-day fraternities and sororities by the medium of the Greek alphabet). Twenty minutes ago the X-ray made its advent. Fifteen minutes ago the horses were erowded off the highways by autos, and at this instant, life is being made more complex as a result of radio, airplanes, and all of the other gadgets that have so incredibly inereased the tempo of life. These factors have naturally inerased duties and responsibilities, have thwarted ambitions, and have greatly increased fears and inhibitions.

Men are feverishly working to perfect more instruments for speed, efficiency, and easy living, and have long ago lost all eontrol of their mental offspring, so that, instead of being a free peoples, we are slaves to inanimate, soulless machinery.

Viewed from a true perspective of time, the thoughtful individual may easily see how really electron-like he is in size, and how unimportant he is as an individual in the scheme of the universe. In such a perspective we might well shape our lives so it would be possible to achieve more of happiness and contentment which, in turn, would make us better neighbors and citizens. We possibly would achieve less of worldly goods and less ill health, and we might even achieve, or at least learn, a bit more about the spiritual values of the universe. It has been said that if a person has five or more worries he will never become insane. It is the one-worry person who loses his mind. Then let us so order our lives that we will have time for more than one interest or coneern.

POPULARITY

Another human aim and ambition is popularity and its ineidental assets. Popularity, in most cases, embraees the ability to bring happi-

* 1. Proverbs 15:13 "A merry heart maketh a cheerful countenance, but by sorrow of the heart the spirit is broken."

2. Proverbs 17:22 "A merry heart doeth good like a medicine; but a broken spirit drieth the bones."

ness to those contacted, and herein lies the value of a happy countenance and the ability to laugh sensibly and in a not obnoxious manner.

One must know when not to laugh, for many embarrassing and, at times dangerous, situations have arisen as a result of a misplaced laugh or uncontrolled guffaw.

We are all cognizant of the five special senses, and we shall refer briefly to two of these senses: namely, sight and hearing. Unquestionably, the most important manner of influencing people is by sight, and perhaps the next by sense of sound. Sight is usually the first blitzkrieg of impression made upon us, and it is closely followed by that of sound. How could we better impress others than by smiling, cheerful countenance, with a gleam in the eyes that promotes confidence, fortified by a pleasing voice, and, when occasion arises, a pleasing chuckle or laugh. Everyone is well aware of the infectiousness of a hearty laugh or an intriguing chuckle.

Physiologically and psychologically, we are aware of the value of good cheer and its related physical and emotional effects upon the body.

LAUGHTER

Let us review briefly laughter, what it is, how it does it, and, finally, the sum total of the effects on the body and mind. Its definition: (Webster) "A movement (usually accompanied with a peculiar expression of the eyes), indicating merriment, satisfaction, or derision, and attended by an interrupted expulsion of air from the lungs; also an expression of the eyes or countenance indicative of merriment or keen amusement." Putting it in another way, laughter is exercise, and, by the definition, implies exercise of various groups of muscles. Likewise, from the definition, we imply that it is an easy and pleasant exercise. Physiologists and trainers of athletes tell us that unless all of our muscles are exercised daily, the total mechanism will be more or less poisoned by absorption of the toxic waste products of cell metabolism which, in turn, will result in physical and mental depression. The statement is also made that this state of affairs leads to dreads, depression, and fears of all sorts. The body muscles should be exercised daily, and many methods of exercise have been devised and advocated by doctors and physical directors, but none really cover the situation better than "all out" hearty laughter. This does not necessitate the purchase of a vast array of apparatus, sports clothes, the hiring of a physical instructor; and it may account for the fact that the Scotch laugh so easily and heartily, and also are famous for their jokes.

An analysis of a hearty laugh gives the follow information. Hearty laughter causes contraction of practically every muscle of the trunk. Depression of the diaphragm in laughter exerts pressure upon the abdominal organs, with a resultant stretching of the abdominal wall muscles in order to keep the abdominal organs in a relative anatomical position at all times. Almost everyone has had the experience of sore abdominal muscles following a seizure of hearty laughter. Vigorous laughter causes more than normal action of the chest cage muscles, and most people, in the act of laughter, go through some manner of contortive movements of the upper portion of the body, thus bringing into play the muscles of the back, shoulders, and neck. Most people also move their arms and legs more or less violently while laughing, thus bringing into action practically all of the muscles of the body.

The following statements may be subject to criticism, but, until disproven, are thought stimulating. If we consider laughter from the standpoint of the various organs and glands of the body, we are reminded of the following circumstances. We know that laughter causes a considerable activity of the neck muscles plus tracheal motion, and it would not be too far fetched to believe that increased circulation through the neck structures as a result would increase the products of the thyroid, para-thyroid, and, in cases of young children, the thymus gland. True, the amount might be quite small, but, nevertheless, of help.

Hearty laughter is equivalent to deep breathing, hence the lungs will be well ventilated, and, inasmuch as the heart is a contiguous organ, it comes in for its share of stimulation, especially from the diaphragm.

There are those who feel that laughter is equivalent to abdominal massage and that the liver will be stimulated and secrete more bile, digestion will be aided in that the stomach and intestines will be stirred to more efficient functioning by the activity of the diaphragm, and the attendant muscular contractions of the abdominal wall. The pancreas might well come in for its mild share of vicarious activity, likewise the kidneys and adrenal glands.

Other effects: The bad effects of poor oxidization in cases of hypertension have been stress-

ed to a great extent lately; therefore, hearty laughter and optimism may be a factor in lowering blood pressure by elimination of toxic products from the system. In other words, the acidity of the body is kept more nearly at normal levels, thus relieving irritation and tension of muscles and organs.

Other values: Advertising agencies have long recognized the value of optimism, smiles and laughter, and a close examination of all well organized advertising material reveals the so-called pulling power of such propaganda. Any agency that feels that it has something that will alleviate suffering in any way makes use of pictures of suffering, agony, and human misery in many forms, to emphasize, by contrast, the value of their product.

Conversely, factors that will increase human happiness are always depicted by optimistically glowing accounts of great benefits, and if pictures are used, it is always that of a happy, smiling individual.

Very young children and animals, especially dogs, are extremely sensitive to moods and particularly susceptible to optimism and happiness as manifested by a smiling face and the relaxed and happy movements of a peace-loving individual.

One has but to add up the factors of relaxed muscles with their minimum of contained waste products, the well ventilated respiratory system, the amply oxygenated body tissues, the normally composed nervous system, and finally the overpowering influence of a beautiful countenance wreathed in an assuring smile to realize the full value of optimism.

SUMMARY

Laughter may be said to be a normal physiological irritant, and apparently peculiar only to man. Laughter is dependent upon a reasoning power and sense of deduction. It is physiological, and it is natural. The ability to laugh and the occasion to laugh should be used with rational frequency and especially with the nervous, depressed, and worried patient. It is a splendid mental tonic and laughter will certainly help to keep the corners of the mouth up. Hearty laughter should stimulate our brain by increased circulation, and thus put us in a position to better appreciate the real values of life. With a clear brain the affairs of life will appear in their true perspective. We will be able to laugh at ourselves, we will see the finer qualities and virtues in others, and it will be easy to lend a helping hand, to speak the complimentary and cheering word, and will prompt us to minimize the weakness and misfortunes of others and magnify their good qualities.

Laughter may thus be said to be an integral part of the physiological processes of the body and mind, and, as such, should be practiced more and more. Laughter and pleasant thinking should then be considered a valuable adjunct to all-round healthy living as well as a natural easy means of total physiological exercise easily within the reach of all.

Finally, laughter begets optimism, self confidence, and relegates fear and pessimism to the background, thus giving one a great advantage in the battle of life. It is a well-known fact that the self confident, happy, optimistic contestant, whether it is in athletics, mental conflict, or any other phase of life, has a distinct advantage both physical and mental over an opponent who is not as fortunate from those standpoints.

It may be that in the future we will realize more and more the importance of a hearty laugh and its attendant chain of supporting by-products. We may eventually evaluate the true balance of spare time, call it what you will—vacation, deviation from the hum-drum path of daily work, or just plaint loafing—and then recognize the fact that accomplishment will be measured by such standards rather than by long hours of drudgery amid tobacco ashes, empty coffee pots, and, in some cases, empty flasks.

Someone said centuries ago, "Use three physicians still; first, Dr. Quiet, next, Dr. Merryman, and then Dr. Dyet."

In closing, let me quote from Burr McIntosh, The Cheerful Philosopher:

A laugh is just like music,
It lingers in the heart,
And where its melody is heard
The ills of life depart.
And happy thoughts come crowding
Its joyful notes to greet;
A laugh is just like music
For making living sweet.

Invest In America!

★

BUY WAR SAVINGS BONDS AND STAMPS

A Bone-Holding-Drilling Forcep

FRANK C. GOODWIN, M. D.
and
DAVID M. CAMERON, M. D.
El Paso, Texas

ABOUT five years ago one of us (F.C.G.) began working on an instrument that would accurately hold oblique fractures following open reduction. The first requisite was that it be simple in design and use. Not only was the instrument to hold the fracture, but it was to provide openings in the jaws through which a drill hole could transfix the fragments, and a wire subsequently threaded. After removal of the forcep, the wire transfixing both fragments could be tightened and the fragments held in accurate apposition for healing.

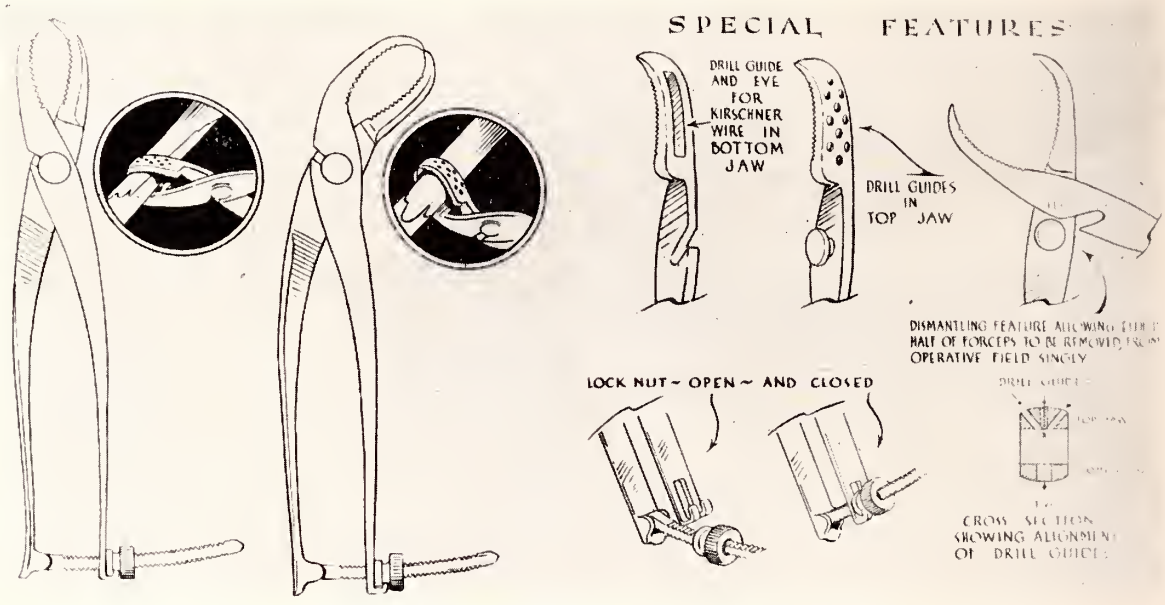

Fig. 1.—Bone-holding-drilling forcep, showing special features.

The final effort consists of two forceps as seen in figure 1. The jaws are set at right angles to each other for convenience in holding the different fracture angles, but otherwise they are of the same construction. Each forcep consists of two detatchable blades, the ends of which are the sharpness of periosteal elevators. This facilitates the placing of the blades beneath the periosteum. The jaws are serrated and open as shown in the diagram. It is to be noted that the two lateral rows of holes are placed obliquely. This allows the instrument to be used on very short oblique fractures. At the present time two sizes are made. The larger size can be used on the larger bones while the smaller size is made for metacarpal and metatarsal bones.

In our technic (fig. 2) we have found that

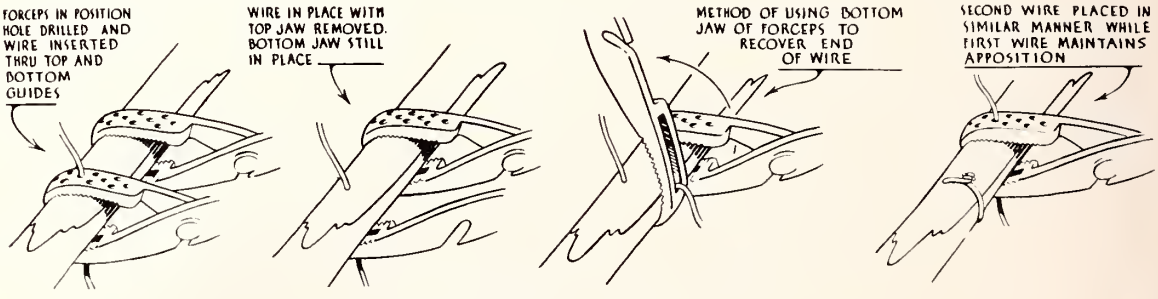
FORCEPS IN POSITION HOLE DRILLED AND WIRE INSERTED THRU TOP AND BOTTOM GUIDES
WIRE IN PLACE WITH TOP JAW REMOVED. BOTTOM JAW STILL IN PLACE
METHOD OF USING BOTTOM JAW OF FORCEPS TO RECOVER END OF WIRE
SECOND WIRE PLACED IN SIMILAR MANNER WHILE FIRST WIRE MAINTAINS APPOSITION

Fig. 2.—Steps in the use of the bone-holding-drilling forcep.

Fig. 3-A.—Usual result following closed reduction of oblique fracture of tibia.

it is preferable to use two forceps whenever possible. In this manner the fracture can be held in accurate apposition by the second forcep while the first forcep is removed and the transfixion wire tightened. The fixed wire then holds the fracture while a second wire is placed and tightened. By using this forcep the holes in the fragments are directly opposite each other and as the wire is tightened the reduction becomes more accurate.

To summarize, the advantages obtained by using this instrument are: the fracture is reduced anatomically: the operating time and trauma are greatly reduced; the far end of the wire is presented into the wound when the far blade of the forcep is removed; there is less internal fixation material; there are no encircling bands to remove; and we believe that fewer cases of delayed or non-union occur.

We are particularly enthusiastic about the good results we have obtained in oblique fractures of the lower ⅓ of the tibia. Figures 3-A, 3-B and 3-C show a typical case. We have used this instrument with success even in comminuted fractures. We do not recommend this unless the fragments are large and can be handled with reasonable accuracy.

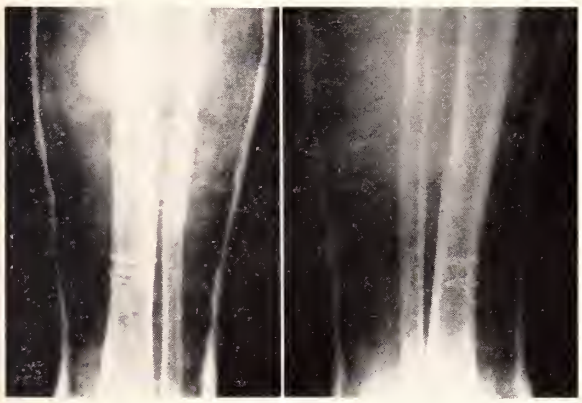

Fig 3-B.—Same case, immediate result following use of bone-holding-drilling forcep.

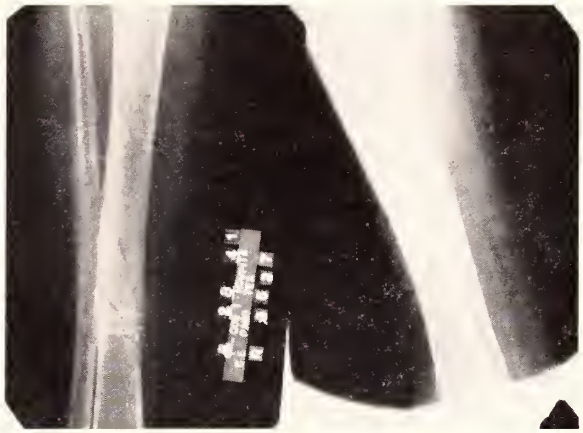

Fig. 3-C.—Same case, 3 months post-operative. No permanent partial disability.

We believe and advocate that the same judgment accorded any method of internal fixation of fractures should be used in determining the practicability of this method for use in each case. Poor results can be expected if this method is used on all types of fractures.

First National Bank Bldg.

AMERICA AT WAR

AID OFFERED BLOOD BANKS

Regulations for the administration of the Blood and Plasma Bank Program of the Medical Division of the United States Office of Civilian Defense have now been prescribed, and funds are available for grants to assist approved hospitals in establishing blood and plasma banks. Only hospitals within 300 miles of the Atlantic, Pacific or Gulf coasts are eligible for such grants. After July 1, 1942, these geographical restrictions may be modified, so that grants may be made to inland hospitals. Applications should be addressed to the Chief Medical Of-

ficer, United States Office of Civilian Defense, Washington, D. C.

Technical manuals on blood and plasma banks, prepared by the Sub-committee on Blood Substitutes of the Division of Medical Sciences, National Research Council are now available for distribution on request of any hospital to the Chief Medical Officer, Office of Civilian Defense.

The Red Cross has established eighteen donor centers in various parts of the country which are successful in obtaining an adequate supply of blood donors for military purposes. Blood for the production of dried plasma for Civilian Defense purposes will also be obtained from these sources.

Hospitals which establish their own blood and plasma banks with the financial assistance of the Office of Civilian Defense are advised to build up their reserves of blood and plasma by expanding blood collection from relatives and friends of patients who are to receive transfusions. A public campaign for volunteer donors which may compete with the work of the Red Cross should be avoided if possible. If public solicitation is necessary, hospitals should appeal to the local chapters of the American Red Cross for assistance in recruiting hospital donors. Blood donor campaigns by agencies other than the Red Cross will tend to confuse the public and may interfere with the blood collection by the Red Cross for the armed forces.

REGULATIONS GOVERNING GRANTS TO HOSPITALS FOR ESTABLISHING RESERVES OF BLOOD PLASMA

WHEREAS: on April 11, 1942, there was allotted from the "Emergency Fund for the President" to the United States Public Health Service the amount of $292,500, "to be expended by said Public Health Service in connection with emergencies affecting the national security and defense for procuring and establishing either independently or, subject to regulations to be promulgated by the Surgeon General, by grants to public and private hospitals, located not more than 300 miles from ocean or Gulf coast, reserves of liquid, frozen or dry blood plasma or serum albumin for the treatment of casualties resulting from enemy action", the following regulations are promulgated to govern the administration of this allotment:

Section I. Eligibility for Grants

Preference shall be given to hospitals serving communities whose geographical location implies a likelihood of civilian casualties from enemy action, and which are inadequately equipped to handle such casualties.

To be eligible for a grant a public or private hospital located not more than 300 miles from ocean or Gulf Coast* shall:

(1) Have a capacity of not less than 200 beds, exclusive of bassinets, provided that two or more smaller hospitals totaling 200 beds may submit a cooperative project designating one of the participating hospitals as the grantee;

(2) Be on the approved list of the American College of Surgeons and the Hospital Register of the American Medical Association;

(3) Have on the professional staff a physician whose qualifications are the equivalent of those required by the American Board of Pathology for its diplomates.

Section II. Approval of Plans

A grant shall cover a period of not more than twelve months following the approval of the plan, or not beyond June 30, 1943, and may be used only for the purchase of equipment necessary for the preparation of liquid or frozen plasma, reconditioning or minor alterations of existing quarters, necessary travel and subsistence allowance of $6.00 per diem to cover a training period, if required, of not more than one week, for the physician directing the blood plasma project, and temporary salaries of personnel necessary for the establishment of a blood and plasma project.

The maximum grant for one hospital is $2,000.

A hospital desiring to receive a grant shall submit a plan to the Chief Medical Officer, Office of Civilian Defense, who is authorized to receive such plans on behalf of the Surgeon General of the United States Public Health Service. A plan shall contain the following information:

(1) The number of hospital beds classified according to use;

(2) The name and qualifications of the physician who will direct the plasma project;

(3) Description of present blood and plasma project, if any;

(4) The type and amount of plasma reserves which the institution desires to prepare;

(5) The delivered price of equipment nec-

Note: The Appropriation Act for the fiscal year 1943 may not limit grants to hospitals within this geographical area.

essary to complete the existing facilities for preparing such plasma—such items to be numbered and described in accordance with the equipment inventory in "A Manual on Citrated Normal Human Blood Plasma," issued by the Office of Civilian Defense, or equivalent approved substitute equipment.

(6) The materials or labor, if any, needed for adapting existing quarters to the needs of the blood plasma project;

(7) The salaries, if any, to be paid additional personnel until the plasma reserve has been prepared. Salary items shall also show the proposed periods of employment for each individual and the proposed monthly rates of pay.

When a plan is recommended by the Chief Medical Officer of the Office of Civilian Defense for the approval of the Surgeon General, the hospital will be furnished a budget and acceptance form to be signed, notarized and returned to the Chief Medical Officer, Office of Civilian Defense.

Section III. Conditions of Grants

(1) The hospital shall agree to build up a plasma reserve of at least one unit per bed within three months after delivery of the necessary equipment. A unit of plasma is that amount derived from 500 cc. of citrated whole blood, consisting of about 250 cc. of liquid plasma;

(2) The agreed amount of plasma reserve shall be maintained for use without charge and only for treatment of casualties caused by enemy action. The reserve shall be released for use in other local hospitals for this purpose on order of the local Chief of Emergency Medical Service and for transfer within the state on order of the State Chief of Emergency Medical Service, or transfer from one state to another on the order of the Regional Medical Officer, Office of Civilian Defense;

(3) Liquid plasma shall be kept from being outdated by replacement of older by newer plasma. Replaced units may be utilized for current needs of the hospital in the treatment of its regular patients, provided the plasma reserve shall not be allowed to fall below the stated minimum.

(4) All plasma shall be prepared in accordance with manuals of the Office of Civilian Defense prepared by the Subcommittee on Blood Substitutes of the National Research Council;

(5) The hospital shall agree to continue the plasma project for its current needs after the expiration of the Federal Grant and to maintain for the duration of the war the minimum stated reserve; thereafter the reserve may be used by the hospital without restriction;

(6) A record shall be kept of all blood donors, including their blood types, to expedite obtaining donors for emergencies;

(7) No funds made available under the grant shall be used for the payment of blood donors;

(8) Any blood plasma project under this program shall be subject to inspection by authorized representatives of the Surgeon General of the Public Health Service.

Section IV. Method of Payment

Payments will be made on a reimbursement basis for expenditures made in accordance with the approved budget. Applications for reimbursement shall be notarized and addressed to the Chief Medical Officer, Office of Civilian Defense. The procedure for payment will be as follows:

(1) Payments from the allotment to cover the purchases of non-expendable equipment aggregating $300 or more will be paid upon receipt from the authorized administrative head and accounting officer of the hospital, of an itemized statement of the purchases supported by invoices showing the date of delivery of such equipment.

(2) Payment will be made for the authorized training expenses of the physician who is to direct the blood plasma project whenever the hospital presents a notarized claim itemizing the travel and per diem allowance incident to the training;

(3) Reimbursement for other items of the approved budget will begin only after actual production of blood plasma is started. During the first three months of production, reimbursement will be made on a monthly basis and quarterly thereafter for the duration of the grant. Such reimbursement will be made only upon receipt of a report form prescribed by the Surgeon General from the institution showing expenditures incurred during the period, total plasma prepared during the month, and the total reserve on hand to date;

(4) Payments may be withheld, and plasma produced as part of this project may be transferred by the Surgeon General, from any hospital which fails to meet the conditions of the grant or to comply with the regulations;

(5) Each hospital shall submit monthly reports during the period of the grant showing the amounts of plasma on hand and used; thereafter, for the duration of the war the hospital shall submit such reports quarterly on its use of the plasma;

(6) Hospitals shall submit promptly reports including clinical abstracts of any untoward experiences encountered in the use of plasma for the duration of the war.

FIRST AID KITS

First aid kits, and preliminary and advanced courses in first aid, are a part of the equipment and activity to be found in many of the 695 USO units in continental United States.

Wives of men serving in the armed forces of the nation, as well as the soldiers, sailors and marines themselves, are seeking the advanced instruction, given in co-operation with experts of the American Red Cross.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

City-County Hospital Staff met Wednesday, May 20, 1942, at City-County Hospital, for the following program:

Care of Orthopaedic Patients by House Staff —Dr. J. G. Galatzan.

Newer Methods in Use in Orthopaedics—Dr. W. C. Basom.

The regular meeting of the El Paso County Medical Society, presided over by Dr. F. O. Barrett, President, was held in the Tea Room of the Hotel Cortez, May 11, 1942.

The program consisted of the following:

"Symposium on the Management of Shock by Casualty Teams."

The Organization of a Shock Team—Major Wright.

Blood Substitutes in Use Today—Major Queen.

Surgical Principles in the Treatment of Shock—Capt. Frackelton.

The Recognition and Treatment of Medical Shock—Major Turnbull.

The discussion was carried on by Dr. B. F. Stevens and Dr. John Pangman.

The application of Dr. Kearney for membership was read, it having been previously approved unanimously by the Board of Censors. A motion was made that he be accepted for membership by Dr. Bennett, seconded by Dr. Varner. Unanimously carried.

Meeting adjourned.

—Chas. F. Rennick, M. D., Secretary.

SOUTHWESTERN MEDICAL ASSOCIATION

(Louis W. Breck, M. D., Associate Editor)

There was very little response to the request as to whether or not a meeting should be held next fall, and the matter has still not been settled finally. It is beginning to look as though a meeting will not be held, but no final action has been taken by the Executive Committee as yet. This has proved to be a difficult matter for the officers of the association to decide, for they are very anxious that the Association be preserved and at the same time they do not wish to hold a meeting if it is going to be poorly attended. We have always had a very active organization, and if its activities are for the most part suspended for the duration of the present war, we will certainly start up with a great deal of enthusiasm when the war is over. Several items of

news relative to activities of members in El Paso are worth mentioning. Dr. Robert Homan, Jr., was elected vice-president of the Texas State Medical Association and also Secretary of the Medical Section of the Texas State Medical Association. Dr. James J. Gorman, was elected President of the Texas State Gastro-intestinal and Proctological Association. Dr. Leslie Smith was made Chairman of the Radiological Section of the Texas State Medical Association. Recently Dr. Arthur Black was in El Paso for a visit of several days on leave from the Navy. Undoubtedly there is a great deal more news about Southwestern Medical Association members in general which should be printed in this column, and the Association Editor again wishes to make an appeal for news regarding members or matters of interest which should be printed here.

Louis W. Breck, M. D., Secretary.

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

The regular meeting of the McKinley County Medical Society was held on Wednesday evening, May 27, 1942, at St. Mary's Hospital, Gallup, New Mexico. Doctors present were: Drs. V. Accardi, W. D. Anthony, E. B. Beaver, E. A. Campbell, D. F. Monaco, F. W. Parker, R. H. Pousma, J. F. Smith and H. T. Watson. Drs. M. R. Chapin and Reo J. Benson, local dentists, were also present.

Mr. Herman Clausner, of the local Credit Bureau, spoke on Regulation "W" of the new Consumer Credit law, Board of Governors of the Federal Reserve System, explaining how this revised act of May 6, 1942 applies to medical credit accounts.

A letter was read from Dr. L. B. Cohenour, State Secretary, asking for name of delegate to State Medical Society meeting, to be held in Santa Fe, on June 25, 26 and 27. Dr. Watson, delegate appointed, will be unable to attend. Dr. Anthony is the alternate delegate.

In reference to the Public Health Educational program which was started in Gallup recently by the Medical Society, Dr. Anthony read several articles prepared, and asked the cooperation of the members present in preparing additional material. Drs. Chapin and Benson gave their approval of article titled, "Dental Defects Cutting Defense Man Power."

A Nurses' Refresher Course has been started, at St. Mary's Hospital, during the last month. The two subjects now being reviewed are "Principles and Practices of Nursing", and "Nursing Ethics." Several of the medical staff members have agreed to give lectures on other subjects. It is expected that the entire series of lectures will last about one year.

The members of the Medical Society decided to conduct the Boy Scout summer camp examinations this year at the Health Department. The boys will be examined, in a body, at a time convenient to all the doctors.

An interesting medical paper was given by Dr. E. B. Beaver on "Congenital Syphilis." Diagnosis and treatment in early and late congenital syphilis, both in adults and children, were discussed.

Two colored films were shown during the meeting: "Splenectomy" and Purposeful Splinting Following Injuries of Hand."

W. D. Anthony, M. D., Secretary.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

REPORT OF THE SUBCOMMITTEE ON SILICOSIS of the COMMITTEE ON INDUSTRIAL HEALTH*

(Arizona State Medical Association)

SUMMARY AND CONCLUSION

The duties of the Committee on Industrial Health of our Association are set forth in our Constitution and By-Laws as follows:

"It shall keep the profession informed as to the latest scientific knowledge on all phases of their problems; shall cooperate with the committee of the American Medical Association and other committees of recognized standing. Their work shall include (a) Fractures, (b) Occupational Diseases. This committee shall make a survey of the occupational diseases and industrial hazards of Arizona. They shall study their causes and make recommendations as far as possible for their alleviation and prevention. They shall study findings and actions of other state and national organizations on occupational dis-

* Published herein by request of W. W. Watkins, M. D., Secretary, Arizona State Medical Association.

eases and be prepared to cooperate with the Committee on Public Policy and Legislation on any desirable or proposed legislation."

At the last session of our legislature there was introduced and given consideration a bill which was intended to make industrial diseases compensable, as industrial injuries are at present. As first introduced this Bill included only silicosis, but later was broadened to cover all industrial diseases. It soon became apparent that this proposed legislation lacked many features desirable in such a law, and it failed of passage. Since so many medical questions were raised during the hearings on the bill, and the opinions expressed by individual physicians varied so widely, it seemed to the Council of this Association that the appropriate committee should proceed to make a survey, at least of the information available in the literature on silicosis and allied industrial dust diseases, summarize this and make the information available to the Association, so as to "keep the profession informed as to the latest scientific knowledge" on this phase at least of the great problem of industrial diseases. The Committee on Industrial Health was asked to appoint a Subcommittee on Silicosis, to make such a study and to formulate a report which would have the united approval of the Association, and which could be used by the Committee on Public Policy and Legislation, whenever legislation is again proposed on this matter. The Subcommittee on Silicosis appointed is composed of Drs. W. Warner Watkins, (chairman), Phoenix; John W. Flinn, Prescott; Wm. M. Schultz, Tucson; Frank T. Hogeland, Cananea; Fred G. Holmes, Phoenix; Louis B. Baldwin, Phoenix; Thos. A. Hartgraves, Phoenix; and W. L. Minear, Patagonia. The Committee on Industrial Health is composed of Drs. O. E. Utzinger (chairman), Ray; J. P. Austin, Morenci; Kenneth Herbst, McNary.

This Subcommittee has reviewed the available medical literature of the past ten years, including about 500 articles and several books, with the publications of the United States Public Health Service, the U. S. Labor Bureau, the U. S. Bureau of Mines and the American Medical Association. A summary of this review is being compiled, and the Subcommittee presents this condensed summary and conclusions, based on our review, our own knowledge of silicosis, and such superficial survey of conditions in Arizona as we have been able to make. These conclusions are of three kinds, with a preliminary declaration containing three recommendations.

DECLARATION AND RECOMMENDATIONS

A. The Committee on Industrial Health and the Subcommittee on Silicosis recommend to the Arizona State Medical Association that this Association declare its conviction that silicosis and other disabling pneumoconioses should be made compensable industrial hazards in Arizona, thus joining this state to the twenty-two other states which have established this provision.

B. We further recommend that this Association pledges its support to legislation which will provide justly and adequately for the care and compensation of workmen who have become disabled by silicosis and other pneumoconioses through working in mines and other industries in Arizona.

C. We further recommend that our Committee on Public Policy and Legislation give very careful study to any legislation proposed, in order to see that its provisions are in accord with the known medical facts, in providing adequate protection against industrial dust hazards, in accurately and scientifically determining the disability produced by dust diseases, in justly compensating the workman, and fairly placing the responsibility for the disability produced.

CONCLUSIONS

Our conclusions are of three kinds:

I. Conclusions regarding which there is no disagreement among the authorities and workers with silicosis.

II. Conclusions as to problems concerning which there is still not complete unanimity of opinion.

III. Questions which seem to us very important and which should be resolved before intelligent legislation can be enacted.

I.

1. There is no disagreement as to the *cause* of silicosis; that is with reference to the kind of dust, the size of the dust particles, and the concentration of dust necessary to produce silicosis.

2. There is no disagreement on the proposition that *silicosis is preventable.* Therefore, the first line of attack on this disease, as with all other preventable diseases, should be directed toward establishing adequate preventive meas-

ures. Any adequate legislative program should include this.

3. There is no disagreement with the observation that, with the exception of a few rare examples which have occurred in industries not found in Arizona, silicosis requires several years to develop.

4. There is no disagreement with the statement that the first and second stages of *simple* silicosis (not complicated by infection) is not disabling and requires no treatment.

5. On the other hand, there is practically no disagreement with the statement that a lung which is the seat of silicosis is more susceptible to tuberculous infection, and that the tuberculosis is usually more rapidly progressive in such a lung, than in normal lungs.

6. All authorities are in agreement that the diagnosis of silicosis is not the simple matter it was once thought to be, either as regards the presence of silicosis, its stage, complicating infection, or the amount of disability present. The roentgenogram gives only partial information which must be correlated with the history, the physical findings and the clinical signs. Several other conditions will cause x-ray shadows so nearly like those of silicosis that the most expert interpreter may be deceived.

7. There is unanimity of opinion that individual cases vary so widely, and the medical problems are so involved that the only rational procedure for providing an acurate determination of the presence of silicosis and a just estimate of the disability produced in any workman is through a board of medical experts with special knowledge and training in these conditions. This being the case their decision should either be binding on the compensation board, or should carry such weight that the board would hardly dare reject their opinions.

II.

Among the problems regarding which there is still room for study and on which opinions differ, may be mentioned:

1. The occurrence of acute silicosis and under what conditions it will develop.

2. Whether or not silicosis is progressive after removal of the workman from exposure to dust concentrations within safe limits.

3. Whether silicosis beyond the second stage, *without* infection is disabling.

4. Based on medical knowledge of the development of silicosis after exposure what should be the time limit after the last exposure for claim filing for disability or death from silicosis?

5. Based on medical facts, should there be compensation for partial disability from silicosis?

6. Based on medical facts, should there be a time requirement as to exposure, in order to establish liability of an employer?

7. What provision should be made for the care of and compensation of, workmen with nondisabling silicosis who develop tuberculosis and are disabled because of the latter disease?

III.

The Subcommittee recognizes the great importance of several questions which we have not had time to investigate. If the information on some of these is available, we do not yet know where to obtain it.

1. To what *extent* is silica and other industrial dusts hazards to the workmen in the mines and other industries of Arizona?

2. What other industrial diseases are present in Arizona, and to what extent?

3. Should there be a Bureau of Industrial Hygiene, and should this be connected with the State Board of Health? If so, should its duties be entirely educational and preventive, or should it also be their business to determine when the individual workman is disabled and to what extent?

4. Whether done under the jurisdiction of the Board of Industrial Hygiene or the Compensation Board, by whom should disability be determined? By a fixed Medical Advisory Board, by special boards selected as needed, by a single examiner? How should they be selected?

5. Should examination prior to employment be made compulsory so as to establish freedom from disabling lung disease, this to include x-ray examination?

6. Should examination on leaving employment be made compulsory so as to determine whether disabling lung disease has developed?

7. Should the tests of silica percentages in the ores and soil of Arizona made in the past, the statements regarding dust control and dust concentrations as recorded by the dust control engineers of the large mining properties of Arizona, be accepted and used as presumptive evidence for or against the development of silicosis? Or should there be a survey by some dis-

interested agency, such as the United States Public Health Service, who made the survey in Utah, to determine just what the hazards from silicosis are in the mines of Arizona?

Your Committee on Industrial Health and Subcommittee on Silicosis submits this report of conclusions, problems and questions as a preliminary statement only.

Respectfully,

COMMITTEE ON INDUSTRIAL HEALTH
O. E. Utzinger, Chairman
J. P. Austin
Kenneth E. Herbst.

SUBCOMMITTEE ON SILICOSIS
W. Warner Watkins, Chairman
John W. Flinn
William M. Schultz
Frank T. Hogeland
Fred G. Holmes
Louis B. Baldwin
Thomas A. Hartgraves
W. L. Minear.

Note: In concurring in the recommendation of the Committee on Industrial Health and the Subcommittee on Silicosis, as set forth in their report, the House of Delegates expresses its positive conviction that legislation making silicosis and similar industrial diseases compensable should be adopted only after a thorough study and survey has been made covering all phases of this important industrial risk, as it exists in Arizona. Also that such legislation should not be submitted to vote of the people for adoption or rejection as an initiated measure, but should be given careful consideration by the legislative body. As is the case with all public health legislation, the most ideal bill will require frequent revision, and should be placed on the statutes by legislative enactment and never by initiative vote.

MISCELLANY

PREVENTION OF HEAT SICKNESS

Heat sickness can be prevented by a few simple rules of diet, proper living habits, and the replenishment of salt lost from the body through excessive perspiration. In most cases, the program of prevention of heat sickness ends with the use of sodium chloride tablets, plain or combined with sugar, which are provided to the workers in convenient dispensing containers. This is an essential part in its prophylaxis but the individuals who do their work in abnormally hot or humid environment as well as the entire population exposed to very hot weather must be educated to a twenty-four hour program of prevention of heat sickness.

Diet Important

First consider food. This should consist of an easily digested high carbohydrate, low fat diet with an adequate amount of beverage such as water, fresh fruit juices, milk, carbonated drinks, and possibly tea or coffee. Strong alcoholic drinks should never be used in hot weather. Beer and ale are permissible in small quantities. Frequent small drinks of beverages are safer than a large amount at one time which leaves the individual bloated and frequently causes nausea or vomiting on resumption of work. Ice cold drinks must be sipped slowly. Fried foods, canned or over-ripe corn, canned meats, or heavily spiced foods such as sausage are difficult to digest and predispose the hot weather worker to gastro-intestinal complaints. The large meal should come after returning home from work; a light, easily-digested but nourishing meal before work and at lunch.

Haste Should Be Eliminated

Living habits should provide some recreational facilities such as gardening, reading, fishing, or other light activity, but must not encroach on the workman's seven to nine hours of sleep. A cool shower or tub bath before going to work and repeated on completion of work does much to minimize the effects of a hot job or warm weather. Sufficient time must be allowed for going to work to avoid running or undue excitement in getting there on time. Once on the job the worker should continue to be calm and should use the minimum effort compatible with efficient handling of his work. Avoid unnecessary running. Eliminate all non-productive motions.

Use of Salt

The use of salt tablets should be limited to 10 grains every two hours. Some men will tolerate more than that but the percentage of gastric upsets is high. More than 10 grains every two hours should rarely be necessary in the most extreme heat tolerated by man. The actual salt loss during working hours may exceed this amount but should be supplemented by the regular dietary intake. Added energy is sometimes provided through the addition of invert sugar to the tablet which also increases its palatability. Some individuals who do not tolerate the plain salt well can use the sugar and salt combination or an enteric-coated tablet. In the latter case sufficient time should be allowed from ingestion until the salt is needed by the body to permit the dissolution of the coating and absorption of the salt. Such tablets have been recovered in the stool with only part of the coating dissolved. This should be blamed to the type of coating used.

First Aid for Heat Shock

Men employed at glass or metal furnaces, in rolling mills, open pit mines or in similarly hot environment should be instructed in the recognition of heat shock and heat retention as shown with the use of a thermometer. Through the prompt first aid treatment before medical aid arrives the patient may avoid serious injury.

L. S. Arling, M. D., in Minn. Med.

IT'S GOOD BUSINESS

To protect yourself:

Watch out for strangers who ask for money in advance when offering products or services for sale.

Beware of persons who cannot present credentials when collecting or soliciting contributions for any purpose or cause.

Put a "whoa" sign on any proposition you are being rushed into.

Don't sign anything until you have had an opportunity to study its value carefully and to check references.

Be suspicious of schemes in which you are asked to pay a part to the solicitor and to send the balance to some other address.

To avoid grief:

Investigate before you invest.

Read every word of any contract you sign—even (and particularly) the finest print. "Read between the lines" for jokers.

Insist on a copy of anything you are requested to sign.

Ask for and insist on references before signing anything or paying out cash. Get a receipt for cash at all times.

Be skeptical of propositions that sound too good.

Never sign anything under pressure.

Pay by check whenever possible—make it payable to the company or organization if there is one and not to an individual or to cash.

Don't buy anything "sight unseen" if you can help it unless you know and have had experience with the company before or can return it without obligation.—*New York State Journal of Medicine.*

WAR CONTRIBUTION BY THE MEDICAL PROFESSION

Physicians of this country are acutely aware of the part which they are contributing toward war preparations. As a rule the public has little, if any, knowledge of these activities, since they are conducted outside the realm of public observation. While it is uncommon for lay publications to pay attention to these professional activities, it is a real satisfaction to note a comment on them when appearing in a commercial publication. The following is taken from the Seattle *Daily Journal of Commerce*, January 9, and indicates the attention of its editor to medical endeavors to promote the welfare of our citizen soldiery.

"Since the passage of the Selective Service Act, some 6444 medical boards have been established in this country. They have claimed the services of more than 25,000 physicians and 6,000 dentists. These men have examined upwards of 2,000,000 selectees, and they have not received one penny of remuneration. If the examinations were appraised at $5.00 each, this would amount to an outright donation of $10,000,000 by the medical profession to the cause of national defense. And that contribution has been made at a time when most groups are looking for new ways to tap the Federal treasury.

"This nation's goal is not merely to create and train a big army. An army which will be physically and mentally superior is being created. The doctors who have given their services so freely to the nation are doing much to bring that about. The examinations of those selected are complete and searching. In thousands of instances they have been the means of determining disabilities that the men did not know they had, and starting them on curative programs. And after a man is taken into the army, he is given further examinations and tests by the Army Medical Corps, which is largely made up of reserve medical officers who have been called into service from private life.

"This is the healthiest army we have ever had. The physical requirements are unprecedentedly high, far higher, for instance, than those prevailing in Europe. The doctor plays an important part in the program to make the country invincible."—*Northwest Medicine.*

COURSES IN "KENNY" METHOD OF TREATING POLIOMYELITIS

A series of courses in the Kenny method of the treatment of early poliomyelitis will be conducted in Minneapolis under the supervision of Dr. Miland E. Knapp, director of the department of physical therapy, University of Minnesota

Medical School, Minneapolis. The courses will be financed by the National Foundation for Infantile Paralysis. They have been arranged for physicians, registered physical therapy technicians, nurses with responsible positions in teaching institutions and nurses in key positions in large contagious disease hospitals. The classes will be repeated at various times in the next six to twelve months. The physicians' course is to be of one week's duration and limited to fifteen physicians although it will be repeated from time to time as the demand requires. The course for nurses from contagious disease hospitals is also of one week's duration. The course for registered physical therapy technicians, preferably technicians who have also had nurses' training, and for nurses in teaching institutions is of two to six months' duration. It is recommended that each institution contemplating the inclusion of the Kenny treatment in its program send a physician, a technician and a nurse for training. Inquiries concerning fees and dates of courses should be sent to the Director, Center for Continuation Study, University of Minnesota, Minneapolis.

CHLORAL HYDRATE

Sedatives and hypnotics have always occupied an important position in therapy. No sharp differentiation can be made between a sedative and a hypnotic drug. By definition the former reduces the sensitivity of the central nervous system while the latter induces sleep. In practice, the same drug acts both as a sedative and as a hypnotic. To obtain the first effect the drug is administered in smaller doses and during the day, while the soporific action is usually secured by increasing the dosage and giving it at bedtime.

Chloral hydrate, although not used extensively during recent years is one of the best known hynotic drugs. It was introduced into therapy over seventy years ago, and during this long period most of its virtues and faults have been uncovered. In its favor are its cheapness, relative safety, and effectiveness. Against it are its disagreeable taste and odor, its irritating action, its toxicity under special conditions, and its lack of analgesic power.

The recommended dose of chloral hydrate varies from 5 to 30 grains. All too frequently a far greater amount is given than is necessary to obtain the desired hypnotic effect. A safe rule to follow in regard to all soporific drugs is to begin with the minimum effective dose and increase gradually. The physician often overlooks the fact that in many cases all that is needed is a certain amount of sedation and that the faith of the patient in the drug will accomplish the rest. Often 5 grains of chloral hydrate will produce satisfactory sleep. Since the drug is readily soluble in water, it can be prescribed in solution as follows:

Chloral hydrate .....10 Gm.
Fluid extract glycyrrhiza .....60 cc.
Syrup of orange to make.....120 cc.

Label: One teaspoonful well diluted with water one hour before bedtime.

Since one teaspoonful contains only 5 grains, the dose may readily be increased to two teaspoonfuls or more if needed. It should be mentioned that chloral hydrate must not be dispensed in an alcoholic vehicle.

The dose of chloral hydrate as a sedative is from 2 to 3 grains three times a day. It is often given with sodium bromide in a prescription such as following:

Chloral hydrate ..... 3 Gm.
Sodium bromide ..... 6 Gm.
Syrup of orange .....120-cc.

Label: One teaspoonful diluted with water three times a day.

It is well to remember that sodium bromide is eliminated slowly and consequently will accumulate. Therefore the same complications as those of bromide medication alone may arise.

The action of chloral is prompt and is especially effective in insomnia due to nervous excitement. In therapeutic doses there is no evidence that it injures either the heart or the liver, but its use in severe liver damage is contraindicated since its action is apt to be unduly prolonged and pronounced when the detoxifying power of the liver is impaired. Because of its disagreeable taste is is less likely to be habit forming than most of the other hypnotic drugs. When the cost of medication becomes a factor, chloral hydrate deserves especial attention since it is cheap and can be dispensed in solution.

Chloral hydrate is of little value in insomnia due to pain since it has no analgesic action. The drug should not be given to patients with

Announcing

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Each bottle contains the convenient dosage of five (5) grams of sterile, uniform, fine crystals.

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gastritis, ulcers or other gastric disease since it has a marked irritating action.

In spite of the many excellent hynotics that are now available, chloral hydrate still deserves a place in therapy. Because of its taste and odor it will not suit the fastidious patients, but it still remains an effective drug that has little after effect and seldom causes untoward side reactions. —*Wisc. Med. J.*

MALPRACTICE AND DIAGNOSIS

From the address of Hubert Winston Smith, Associate in Medico-Legal Research, Harvard Law School and Harvard Medical School, on "Legal Responsibility for Negligent Diagnosis" delivered at the American Medical Association meeting at Atlantic City:

"It is my personal opinion that something like 70 per cent of all malpractice claims involve failure of the fact-finding function of the physician. Breach of the primary duty of investigation leads on to such secondary medical derelictions as improper treatment, injurious advice, failure to treat supervening complications, failure to give proper warning of special instructions to patients, nurse or interns, premature discharge of the patient, premature, delayed or unnecessary medical or surgical treatment and administration of contra-indicated anesthetics. . .

"*False Rumor*"

"Recently, I noticed this statement in a medico-legal writing: 'Errors in diagnosis are errors in judgment and are not actionable, but errors of omission such as imperfect records, incorrect administration of treatment and so forth, are questionable and the final disposition of the case rests with the jury.'

"It would be a pity for this mistaken impression to gain credence and circulation among medical men. I shall try to clip the wings of such a false rumor before it flies too far. All negligence in medical practice can be analyzed functionally. We can truthfully say that such negligence always consists of a dereliction in discharge of the fact-finding function or of a dereliction in applying treatment. . . .

"Malpractice cases involving 'failure of the fact-finding function' have now come before appeal courts in England, the several dominions and all of the states in United States except Nevada and Delaware.

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*Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154. Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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'average level' or standard of medical practice in his own or similar localities. The following injunctions and suggestions may be worth noting:

1. Approach the identification of disease from the standpoint of differential diagnosis.

2. Offer a prayer when making a diagnosis but do not omit to take a history or to do a physical examination. Apply indicated procedures remembering that a trustworthy diagnosis should be established within a reasonable time.

3. Disclose the need for a consultant to the patient or the lack of proper instrumentalities. Association of a consultant is usually equivalent to reference when one doubts his own competency but need for special apparatus may call for prompt hospitalization.

4. Keep at least memorandum records.

5. If an independent technician is to be used constitute this person an employe of the patient by getting the latter's consent and by mentioning the fact that the fee is separate since the technician is not connected with the attending physician.

6. Pay just regard to the patients' own self-diagnosis, particularly diagnosis of pregnancy in a multiparous woman.

7. Confirm or refute diagnostic opinions of previous physicians but do not adopt them without independent examination.

8. Check x-ray films to see that they cover the area ordered photographed.

9. Do not destroy x-ray films or records; this creates an unfavorable impression in jury trials and may warrant an inference that the evidence was suppressed because favorable to the patient's contention.

"Remember that the duty of diagnosis is a continuing one calling for subsidiary surveillance throughout treatment and confirmation or discovery of complications. Reappraisal of the original diagnosis is called for when it is thrown into doubt by new facts reasonably discoverable in following the case.

"Remember, also, that even outstanding men may be derelict and jurors are not so tolerant of mistakes in diagnosis as of some other dereliction."—*Minn. Med.*

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2. It prolongs the condition of muscle spasm and prevents its treatment.

3. It prevents the treatment for the restoration of coordination of muscle action, a serious error.

4. It promotes the condition of stiffness, which according to all reports, prevents satisfactory treatment either for the symptoms that brought about the condition (muscle spasm) or the development of muscle power by reeducation, or the reawakening of impulse.

5. It interferes with nutrition of the skin, subcutaneous tissue and muscles.

6. It reduces circulation.

7. In any system of treatment it cannot prevent deformities. If immobilization is used with the Kenny system, it would not prevent deformity because it would prevent the treatment of the symptoms of the disease in the acute stage. It does not in the orthodox system prevent deformities of which there is unfortunately abundant evidence.

8. It diminishes the volume of nerve impulses through the nervous system along the afferent and efferent paths.

9. It produces changes in the capsular ligaments and prevents their normal functioning.

10. It interferes with the normal function of the subconscious mind.

11. The synovial fluid tends to disappear and the joint to become dry.

12. It gives the patient an adverse psychological outlook.

Kenny further believes that attempting to increase muscular strength should be a minor role in therapy. The major endeavor of treatment should be to attempt to restore coordinated, balanced muscular action by reestablishment of nerve pathways and mental processes.

Cole and Knapp have stated that their routine of treatment at the University of Minnesota using the Kenny system has been roughly the following: "Especial attention is paid in the examination to the presence of muscle spasm, location of pain, extent and probable cause of apparent paralysis and the patient is then placed on a firm mattress supported by bed boards. There is a foot board with the mattress sufficiently separated from it so that the heels or toes of the patient will not be resting against the mattress. This board is intended to maintain the normal standing reflexes arising

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from pressure of a hard surface upon the soles of the feet and is in no way to be considered a splint. The patient is placed in a position comparable to the normal standing position with the arms at the side and the knees straight. No splints or cast are used. Hot foments are then applied to the affected muscles. These foments are made with boiling water from pieces of blanket cut to size which are passed twice through a very tight wringer and applied directly to the part. The hot pack is protected by oil silk and towels, etc. These foments are renewed every two hours in most patients, every hour or half hour in the more serious cases. Passive movements of the joints and muscles through the range of motion possible without pain are carried out several times a day. In addition an attempt is made to maintain awareness of the part by training the muscles once or twice a day as soon as muscle spasm is sufficiently reduced. As pain is reduced, the muscle training is increased to maintain normal nerve pathways and restore those that are damaged. By the time the patient is ready to be released from contagion the pain and spasm are usually gone and the reeducation has been well started. Muscle training is carried on twice a day until the patient is normal or ready to be discharged from treatment.'' As spasm is reduced the patients are given tub treatments in warm water and also warm arm and leg immersion baths are used. Later on spray baths of hot and cold water for stimulative purposes are used. At times warm paraffin applications are used for abdominal muscle spasms. —*Kentucky Med. J.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

DOC'S WIFE. by Faye Cashatt, M. D.: The Macmillan Company, New York, 1941: $2.00.

Faye Lewis' pen produces a fascinating story. She is to be congratulated.

Life in Iowa during the past several decades has been thoroughly unstatic. The roads, the automobiles, the people, the times, the weather, her own family, everything in general gets its share of comment by the author.

The story is interesting to the profession and to the laity probably about equally. She had contact with the great Hertzler and her writing shows it.

The publishers have done a beautifully artistic job. —*O. H. Brown.*

THE HISTORY AND EVOLUTION OF SURGICAL INSTRUMENTS: by C. J. S. Thompson, M. D., Honorary Curator Historical Collection Museum of The Royal College of Surgeons (London). Pp. 113. 116 illustrations. Cloth. Edition limited to 975 copies for England and America. Schuman's. New York. $8.50.

This letter tells in tragic manner the value of this book:

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CUDDINGTON, AYLESBURY, BUCKS
ENGLAND

We have suffered a grievous calamity since I last wrote you, in the almost total loss of our incomparable collection of Surgical instruments at the Royal College of Surgeons. During the bombing raid on London last week, high explosives reduced the interior of the museum to ruins and the historical instruments rooms were burnt out. It is a terrible loss as only a few specimens were saved.

The President and Council of the College are most anxious to know when my book on the instruments you have in hand, will be published? Will you please do your best to get it out soon, as it is the only record we shall possess of this collection. *Directly you can get two or three advance copies please send them to me singly by registered post. I expect we shall be sending a large number of orders for copies later on as you will understand how valuable it will be to us now.*

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DIRECTORY OF MEDICAL SPECIALISTS. Certified by American Boards. Second edition. Pp. 2,495. Price, $7.00. New York: Columbia University Press, 1942.

This is the most valuable medical directory published in America. Since the age of specialization is upon us, there must be readily available a means of ascertaining information concerning those who claim to be specialists. That is not to say that only those listed in this directory are competent to practice a speciality, but it is understood that those men so listed have been examined and classified as competent by juries of their peers.

The growth of the specialty board system in the United States has been steady and remarkable. The generalized acceptance of the sphere and aims of these boards has brought some semblance of order out of the chaos of yesteryear—where to be a specialist was merely to hang out a sign. Now the young physician who desires to limit himself to a specialty must undergo a long period of supervised postgraduate study and training, and finally, to gain recognition of his qualities, stand one of the stiffest examinations ever devised when he appears before his American Board for certification. And all that is good—it protects the public, and enhances the prestige of medicine in general.

The new edition of the directory carries biographical data of all who have been certified by any of the 15 specialty boards. Diplomates are listed geographically and alphabetically. Libraries, hospitals, industrial concerns, insurance companies and individual physicians will find this book extremely valuable. The war and navy departments find the listings helpful in the task of appraising candidates for appointment in the medical corps of the services.

A great deal of work has gone into the preparation of this complete volume. Besides the cataloguing of the Diplomates, there is data concerning organization and requirements of all the Boards, plus a section of historical interest.

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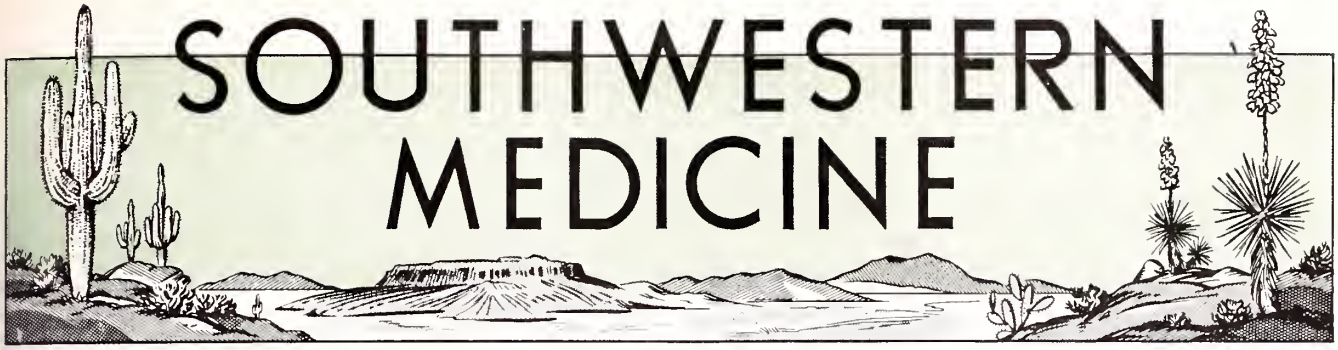

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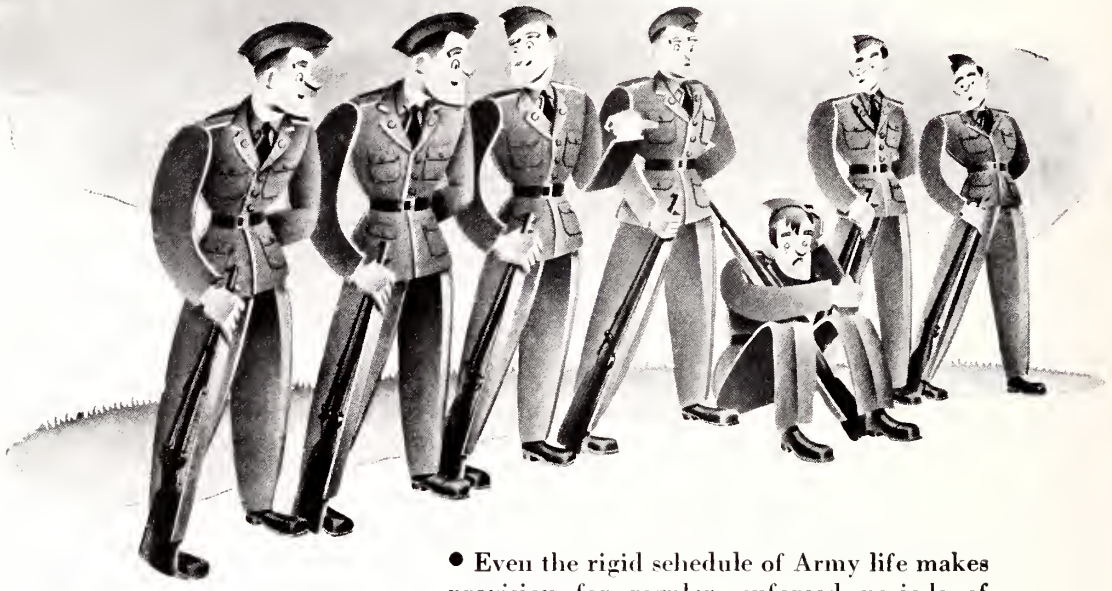

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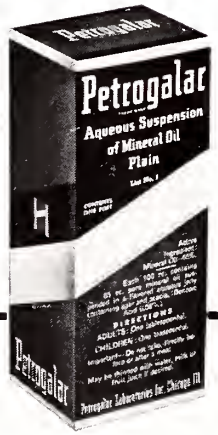

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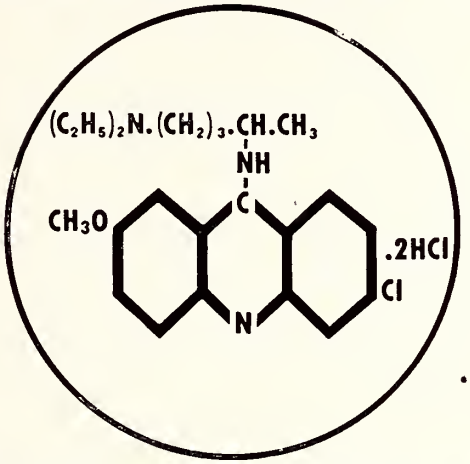

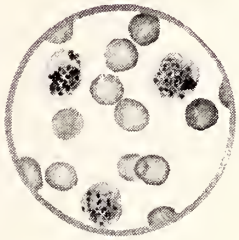

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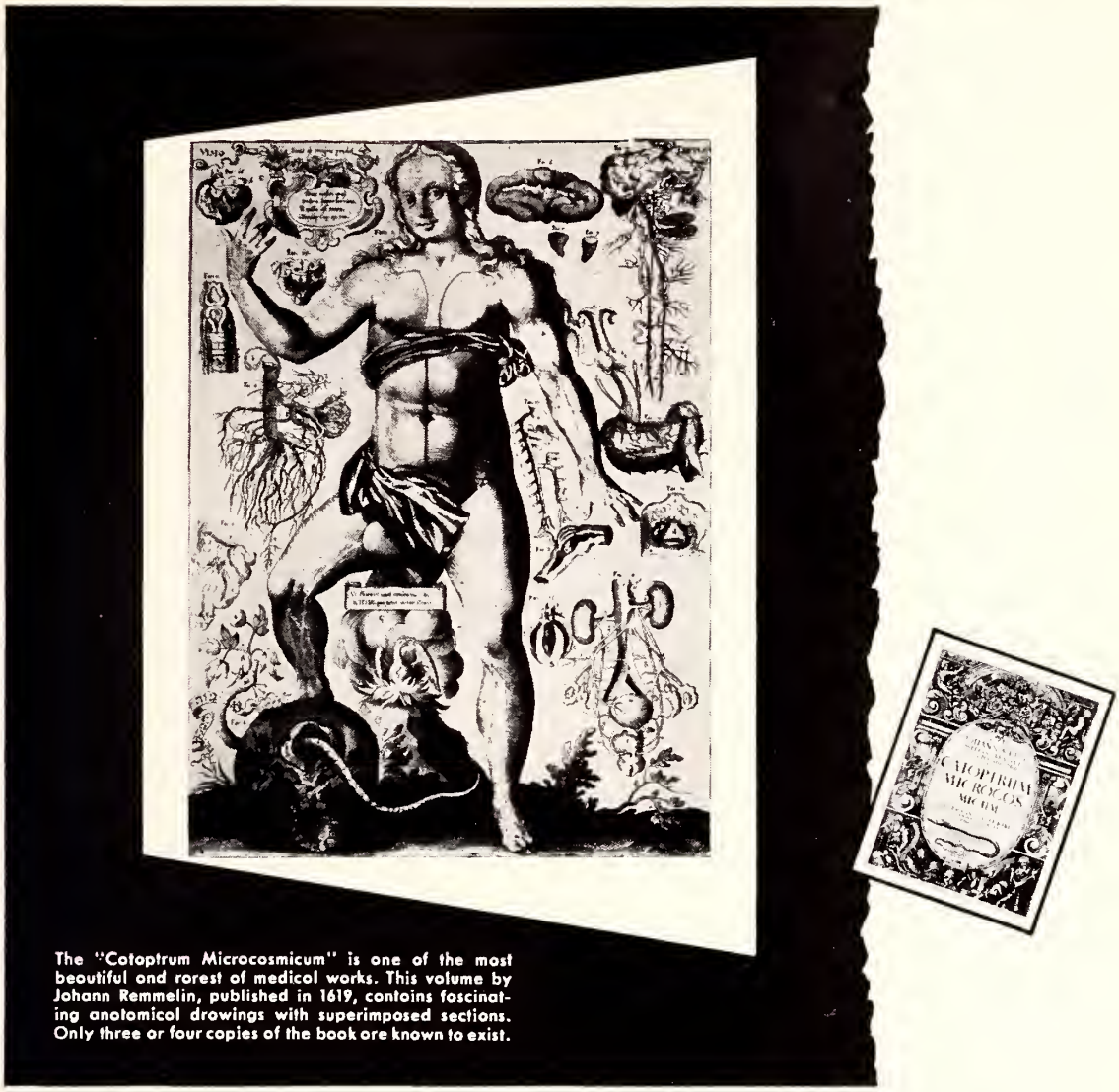

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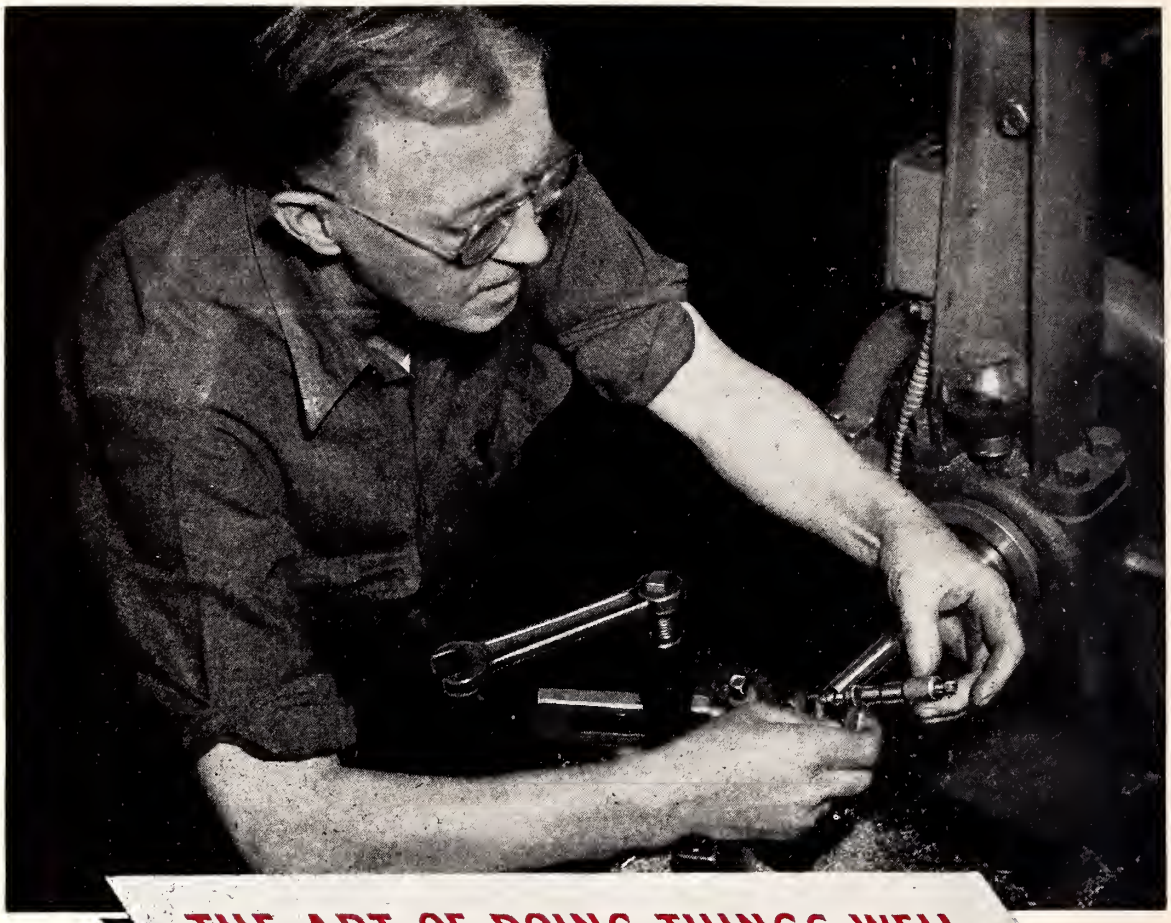

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WALLACE P. MARTIN, M. D.

At the Santa Fe session of the New Mexico Medical Society, June 25-27, Dr. Wallace P. Martin of Clovis succeeded Dr. Carl Mulky of Albuquerque as President of the Society.

Dr. Martin was born a Hoosier in Evansville, Indiana, October 29, 1886. His early education was obtained in the Farmersville schools, ending with graduation from High School in 1907. A period was spent in varied labor to earn money for college. One year was spent at Cooper Medical College (now Stanford University),) after which came another period of labor for funds. In 1912 Wallace Martin entered the Medical School of the University of Southern California, and graduated with the degree, Doctor of Medicine, in 1915.

In that year he married Miss Ida Tripp, Monrovia, California. They have two daughters, Ruth and Marcella, now both married with homes of their own.

Dr. Martin interned at Sacramento County Hospital, and began the private practice of medicine in Fresno, California, just before World War I broke. Entering the U. S. Army, he was commissioned First Lieutenant, serving until his honorable discharge in 1919. At this time he began practice again in Burkburnett, Texas, remaining there until 1932. In this city he was active in civic and American Legion circles, building a hospital, serving on the school board, and as Commander of the local Post of the Legion. He retained a commission as Caption in the Medical Corps of the National Guard until 1929.

Coming to New Mexico in 1932, Dr. Martin again entered into Legion and public duties. He is at present chief medical officer of the State Guard, with the rank of Lieutenant Colonel. In 1937 he was elected State Commander

of the American Legion Department of New Mexico, and served as a National Committeeman. He is now Grand Conductour, Albuquerque Voiture 40-8. After serving several years on the committee on Legislation and Public Relations of the New Mexico Society, Dr. Martin was made President-elect of the Society at its 1941 meeting in Raton.

The new President is chairman of Civilian Defense, Area 5, New Mexico, is a past-President of the Curry County Medical Society and member of the staff of the Memorial Hospital,

He had a great deal to do with the building of this latter institution. Dr. Martin is a 32nd degree Mason, and belongs to the Christian Church.

With the experience and talent for organization possessed by their new President, the New Mexico Medical Society may well know that the choice of Dr. Martin as their leader is most fortunate for the trying year ahead.

VOLUNTEER FOR VICTORY

Readers of this journal have noticed for many months editorials based on the theme that not all American physicians were doing their bit in the way of joining the armed services in the war effort. As usual, the majority of the doctors needed no urging or prodding. But there were many completely qualified who hesitated. Toward that minority, motivated by various rationalizations, some rather caustic comment has been directed by this journal. Apprehensive, months before Pearl Harbor, of the likely effect upon the medical profession and the defense program alike of the apparent hesitancy of some doctors to face the necessity of complete cooperation with the Army and Navy, these columns have jawed and cajoled all who might read. This policy was deliberate on the part of the writer, who was convinced that it was high time to "Wake up!" Further, the motive of love and respect for his profession entered greatly into the birth of this policy. All of us in medicine have given too much of ourselves to this high calling to view with complacency the slightest hint of trouble brewing for our beloved profession, from endogenous or exogenous sources. Out of a sincere conviction that some of our colleagues were, either innocently or stupidly, about to bring discredit upon American medicine, a series of editorials was directed toward bringing sharply into focus the stringent necessity of quickly facing reality. Perhaps, during the period of the campaign, toes were stepped on. Well, each man will have to decide for himself his own pain threshold.

There is still a problem. There is a war—a bitter conflict of life or death for every one of us in North America. If we do not win, understand this, not one single thing we now possess will be ours—property or life itself. Your house, your bonds, your insurance, your wife, your babies' security—these precious valuables of yours and mine are all forfeit if this war is lost! It is not pleasant to contemplate this brutal fact, but there it is, for all to see. American medicine, alone, has been granted the honor and privilege of mobilizing and coordinating its contribution to the war effort in an autonomous fashion. We, that is, you and I, are not going to fail America.

Yet, as late as June, 1942, it was necessary that a high Government official say this:[1]

1. We are not getting enough volunteers. We are not getting as many volunteers as the Procurement and Assignment Service expected we would have by this time. It is absolutely necessary that there is an immediate and significant increase in the number of volunteers, or else some other method of procurement will be required soon.

Slightly more than 3000 physicians, who were not obligated by reserve commissions, volunteered in the first six months of this war. By contrast, 12,000 volunteered in the first six months of the last war.

An army of 9 million will take 12 per cent of our male population. Present medical corps ratios indicate that the armed forces will require 33 per cent of all our physicians (including retired men)—two-thirds of all those under the age of 45.

Several thousand physicians are needed by July 1, and more physicians must be drawn into the service in the next six or seven months than the 22,000 taken during the past eighteen months. Another 10,000 will be needed in 1943.

Some states are ahead of their reasonable and expected quotas. Others are from hundreds to thousands behind their quotas. There is evidence that there are still some areas in America which have not yet fully discovered the war.

This is no statement of opinion. This is a statement of some very hard facts. I deliver them without the slightest hint of bedside manner for your earnest consideration.

2. And remember this: The Army and Navy are not the whole story. There is yet far too little consciousness of any problem beyond that of obtaining physicians for the Army and Navy. The acute need for civilian service is not yet appreciated. There will be no "business as usual" for physicians at home—any more than there can be for the physicians in the military service.

It is too bad that the above had to be said, yet, the hard facts made it imperative. And those facts? Simply that too many younger doctors in Phoenix, El Paso, Tucson, Albuquerque, Las Cruces, and hundreds of other towns in this nation did not choose to regard the call to duty as a personal appeal to themselves. Let it be emphasized, and now, that this call must be answered. The time has come for the realization that Hitler and his gang get too much comfort and aid out of the failure of any one of us to see and accept our duty.

This writer has been adjudged a common scold by some of his readers, an alarmist by others. Editors of many of this nation's medical journals have foreseen the dire possibilities inherent in the less than complete response to America's call of need. So this writer has not been alone in his apprehension. And now, this:[1]

The plain fact and conclusion is simply this: The Army and Navy and the war industry areas have not gotten the doctors they need. The careful safeguards that were set up by the Procurement and Assignment Service have apparently slowed down the rate of recruitment. The voluntary plan must work and work promptly—or some other more vigorous plan will have to be produced.

Yours has been an outstanding effort in canvassing and classifying every member of your profession. You have still in your hands the machinery by which a self-governing profession can demonstrate its ability to meet the tremendous de-

mands of total war. And I appeal to you to make that machinery work.

Yours is an important profession. It is the first to require rationing—rationing which will make sure that there are enough doctors to meet the needs of every unit of the home front and of the battle front. The issue is who shall do the rationing, for America must have the doctors it needs.

To those who can answer the call—for America's sake, *come forward now!* Don't let it be said of your country's doctors "too little, and too late."

1. McNutt, Paul V.: The Urgent Need for Doctors, J.A.M.A. 119. 605, June 20, 1942.

Treatment of War Burns

E. PAYNE PALMER, M. D.
and
E. PAYNE PALMER, Jr., M. D.
Phoenix, Arizona

This is one of the most thorough, timely and valuable papers on Burn Therapy that has appeared anywhere in the scientific press. It is worth hard study, and saving for future use by every reader.—The Editor.

APPROXIMATELY 5000 deaths in the United States are annually attributed to severe burn. Now with the added danger of bombing, every physician should be well acquainted with the problems arising from, and the proper treatment of burns to prevent deformity and to reduce the mortality rate.

During the last seventeen years much research has been done on burns. The research was initiated in 1925, by Davidson of Detroit, who introduced tannic acid in the treatment of burns. The coagulation of the burnt area by tannic acid reduced the mortality of burns enormously prior to the war. Variations in the method of use of tannic acid during this time, met with varying degrees of success; the most popular one was the application of a ten per cent silver nitrate incorporated with the tannic acid in order to allow a more pliable tan. Various jellies with tannic acid, and also ointments, were likewise used.

With the advent of World War II an entirely different outlook on the treatment of burns has been established and with that outlook, our knowledge and armamentarium has increased greatly. Burns are now treated with a far greater degree of success than ever before, and our old fear of the terrible deformities resulting from keloid formation and scar contracture can, to a great extent, be forgotten. This is especially true of burns of the hands and face which will be dealt with later in this paper.

The newer methods of treatment, especially the use of aniline dyes and first aid treatment, have come from England. Our knowledge of the importance of shock and its immediate and adequate treatment, however, has come both from this country as well as England. There have been recent articles on the use of a sulfydryl solution of sulfadiazine 3% in 8% triethanolamine in the treatment of burns. The results of the use of these chemicals are very gratifying and must be given consideration. But we must keep in mind that these were used in peace time and on a limited number of patients; economically they are not as yet feasible for use in times of war. In times of peace the treatment of burns is standardized and definite; the expense of the agents used is not a major item. In times of war great numbers of casualties have to be treated; consequently the economics of the agents used has to be given consideration. So it is personally felt that our thought in the treatment of war burns should be directed toward those agents and methods of treatment which have proved so successful in the first few years of Word War II.

Burns and scalds have been more numerous in the present conflict than ever before. This is a total war. The bombing attacks are indiscriminate, and therefore the civil population, often women and children, may suffer the most. The greatly extended use of mechanical transport with its fuel oil has been responsible for an increase in burns and scalds among the general public. In the Army, Navy, and Air Force, with their extended use of fuel oil, with their dive bombing on warships and tanks, the casualties due to burns have naturally multiplied. Quite a number of bad burns have also occurred among the fire fighting personnel, due to the intensive heat of burning buildings ignited by incendiary bombs. In many cases burns are the only injury present; in others,

(Read before the War Session of the American College of Surgeons, April 21, 1941, Phoenix, Arizona.)

burns are often complicated by open wounds and fractures.

FIRST AID, SHOCK AND TREATMENT

The medical profession must realize the importance of prompt and proper first-aid treatment for patients with severe burns. Naturally physicians must be thoroughly trained in the fundamentals of first-aid, so they can direct the laity and actively promote better emergency treatment for patients with burns.

Treat them where they lie is truly the first principle in the emergency treatment of burns. Treatment should begin immediately at the scene of the accident to combat shock and relieve pain, only after this should the burn be treated. Shock to some degree exists with all burns. If shock is profound, no movement whatsoever would be allowed until improvement has occurred. Many lives have been sacrificed through subjecting patients in shock from burns to the added shock of transportation. Established shock is easily aggravated by any rough handling of the patient; even a rapid change of position may induce a profound collapse. Cover the patient with a blanket to conserve the body heat. If necessary, administer morphine hypodermically (⅓ to ½ gr. for an adult).

Major burns should not be coagulated as a first aid measure; neither should grease or oil be used. Many burned areas are contaminated; so local cleansing with warm water and soap (not tincture of green soap) should be carried out at the site of the accident if possible; then cover with sterile gauze or towels wet with normal saline or bicarbonate soda solution, preparatory to transportation to the hospital. Preliminary cleansing is often impossible; so the use of one of the various jellies is indispensable. Of all the jellies used, the one containing a 1% gentian violet and methiolate in a concentration of 1:5000 has been adopted as the most satisfactory by the British. The jelly should be liberally applied on two or three layers of gauze which are then placed over the burnt area and retained by a bandage. This first aid dressing can be left in sight until the patient reaches the hospital. Burns of the face are best treated with cod-liver oil. If the eyes are burnt, drops of castor oil containing 1% cocaine should be instilled.

In those cases in which associated injuries are present, the gentian violet jelly should be applied to the wound as well as to the burn. If the extremities are involved and compound fracture is present, the limb should be put up in plaster of Paris after the wound and burnt areas have been liberally dressed with the gentian violet jelly.

Plasma and serum are ideal for the permanent establishment of proper circulation in shock. The fluid imbalance, due to plasma loss, should be combated immediately by replacement therapy with plasma or serum transfusions. The magnitude of the plasma loss is sometimes such that 10 c.c. or more of plasma per kilogram of body weight may have to be given and be repeated if necessary. This treatment appears to be definitely life-saving in cases of severe burns in which there is a high degree of blood concentration. Great clinical improvement follows its administration; it is accompanied by a rise in plasma volume. In patients with shock, one must be cautious in the administration of intravenous fluids, an overdose of fluid is as dangerous as an underdose, though the danger is less with protein-containing infusions than with saline solution. Maintain adequate oxygenation of the tissues until the patient's own improved blood volume and circulation can cause the anoxia to disappear spontaneously. Antitentanic serum should be administered to avoid a blunder. Sodium pentothal is the anesthetic of choice when it is necessary to operate before the patient has recovered from shock. By adding this to the intravenous medication, both of the required remedies may be given at the same time. In severe cases of burns, adrenal cortical hormone should be given intravenously. A high protein diet is also necessary as soon as nourishment by mouth is possible.

TRIPLE-DYE METHOD

After the patient has been anesthetized with sodium pentothal and all complete debridement done, the burnt area should be washed with warm saline solution and dried with an electric dryer. Then an aqueous solution of triple dye, gential violet 2%, brilliant green 1%, and neutral acriflavine 0.1% is sprayed over the burned area. This is then dried and a second application applied, which is also dried. Usually two applications are sufficient to produce a thin supple tan, which is quite adherent everywhere. In an area in which sopsis is evident

owing to insufficient cleansing and tanning, an anesthetic should be given and the area retanned.

The dyed burnt areas are not covered with any dressings, but the patient is shrouded with a hot air cradle, with the exception of the head. The burned areas are sprayed every hour the first day, every two hours the second day, every three hours the third day, and every four hours the fourth day. Thereafter the tan is inspected each day; any moist areas receive another application of the triple-dye. By the end of ten days the tan usually becomes loose and falls off, leaving a healed wound. An extensive third degree burn usually will not heal, but a large granulating area will be exposed after the tan is removed. This area should be treated with saline dressings for a day and then skin grafted. There is still too many cases of burns which are allowed to heal by granulation with its subsequent keloid and fibrous tissue formation. On the back of the hands and fingers in third degree burns, early skin grafting will make all the difference between success and failure.

TANNIC ACID TREATMENT

This treatment should not be given until shock has been combated. The actual cleansing of the burnt area is identical with that used before the triple dye is applied. After cleansing with saline solution, the area is dried, and 1 or 2 percent gentian violet is applied by swabs and dried by an electric dryer. A solution of 5% tannic acid is then applied followed by a 10% solution of silver nitrate. A firm hard tan is quickly produced by this method. This is suitable for burns of the trunk, but it should never be used on the hands or face. Too many cases in the present war have produced ample evidence that under the unyielding tannic acid coagulum applied to the hands and fingers, an edema develops to a degree which seriously embarrasses the circulation in the fingers leading to the production of crippling deformities. This is the result of the treatment and not of the burn.

After the application of tannic acid the whole affected area should be suspended or splinted. The patient is nursed under a heat cradle.

As a rule, minor degrees of sepsis can be controlled by gentian violet sprayed on the affected areas after removal of the overlying crust, but if the entire surface becomes infected, then the tan should be removed by soaking with saline solution or in a saline bath. Retanning should never be undertaken. In third degree burns of large area, skin grafting must be performed if scarring is to be prevented.

BURNS OF THE HAND

There can be no doubt whatever that the best preliminary dressing for burns of the hands is a saline bath. The hands should be immersed in a bath twice a day and the patient encouraged to move his fingers in the bath. A saline pack is applied after the bath, and this is kept moist and allowed to fall off in the next saline bath. By such a process, trauma is reduced to a minimum, and there is no pain from changing the dressings After three or four days of this treatment, triple-dye is used, and when this begins to loosen in ten or twelve days, the burnt area will be found completely healed. Saline packs, however, cannot be given as a first aid dressing, and so the majority of burns of the hands have to be treated with gentian violet jelly. Excellent results have been obtained from this treatment.

Burns of the third degree in which the whole thickness of the skin is destroyed should be treated with saline baths if possible and then early skin grafting. Sepsis must be eliminated at all cost because of the contractures that are bound to follow. An excellent dressing for burnt hands is "tulle gras" made of woven open mesh gauze, saturated with petroleum jelly and Balsam of Peru. A saline pack is placed over the gauze and kept moist. The hands should be placed on wire splints in a position of rest with slight dorsiflexion on the wrist and slight flexion of the fingers.

After healing has taken place, it is very important that the newly formed skin should be adequately nourished; to this end some lanolin is rubbed into the area every night. This natural wool fat has wonderful effect on the skin; it causes it to become thicker and more supple and increases its blood supply. It is a pity that the after treatment of burns has been so neglected in this respect. The application of lanolin should be continued for fully three months after the healing of the burnt area if good results are to be obtained.

BURNS OF THE FACE

In burns of the face there can be no doubt that saline dressings are the best form of treatment if the patient can be transferred to the

hospital immediately after the injury. This is rarely possible during war time; therefore, some first aid treatment must be given. Excellent results have been obtained in the British forces by the use of gentian violet jelly and codliver oil. Tannic acid should not be used on the face as the burn cannot be watched sufficiently, and early skin grafting may be delayed. The elimination of sepsis is of prime importance, and early skin grafting is essential when the whole thickness of the skin is destroyed.

A sulfhydryl solution has been used with marked success on first and second degree burns of the face in this country, but so far no reports on its use during this war have been reported. The cost of this solution possibly makes its use prohibitive during this war.

The triple-dye method however has also been reported as giving excellent results in burn of the face.

CHEMOTHERAPY

Chemotherapy, using the sulfonamide derivatives, is being tried more and more extensively as the war progresses. Sulfanilamide is almost routine in the British Services. It is used not in local application, but internally for three to five days after a burn is first contracted. This, reportably, has cut down the septicemia and local infections to a marked degree.

At the onset of our entrance into the present conflict, sulfanilamide and sulfathiazole powders were used on burns as first-aid measures. This was soon abandoned, however, as it was found that the results were unfavorable as the powders caked, resulting in a portion of the wound being uncovered.

A new method has been advocated which appears to meet many of the requirements of an ideal burn treatment. In the John Hopkins Hospital a series of burned patients were treated in the following manner: After treatment of shock had been instituted, the burned areas were immediately sprayed from an atomizer with 3 per cent of sulfadiazine in 8 per cent triethanolamine. This treatment was found to allay pain to such an extent that a narcotic could often be dispensed with. Scrupulous care and aseptic technique were exercised in the through debridement of all blebs and loose tissue after the initial spraying. The areas were sprayed every hour during the first day, every two hours the second day, every three hours the third day, and every four hours the fourth day. By this time a thin, translucent eschar had formed, and further spraying was not essential. Through this translucent crust the progress of healing could be followed, and in second degree burns the regeneration of the epithelium could be observed. The eschar is sufficiently strong, yet pliable and elastic enough, to prevent breaking, so that active exercise and partial weight bearing are encouraged to prevent contractures. After about ten days the edges of the eschar begin to loosen and to separate from the intact epithelium beneath it. At this time compresses of sulfadiazine-triethanolamine mixture may be applied. In third degree burns the eschar is allowed to remain in site for at least two weeks. For patients with second degree burns and not hospitalized the same debridement is employed as in more extensive burns; the areas are sprayed several times and covered with either sterile vaseline gauze or ointment consisting of five per cent sulfadiazine and 8 per cent triethanolamine in a stearin base. No eschar forms unless the burned area is exposed, but healing proceeds satisfactorily in these cases.

The sulfadiazine solution has a PH of about 8.7. It does not stain, is almost odorless, does not injure skin, mucous membrane or granulating surfaces, and can be used in and around the eyes with impurity. Sulfadiazine can be detected in the blood within several hours after being sprayed on a burned area, but when the eschar has been formed, the blood level rapidly falls even though the spraying is continued.

Because of the superior results obtained and the absence of any toxic effect, this treatment is being used for all burns at the John Hopkins.

SUMMARY

It is obvious from a review of recent literature that many new agents are being used in the treatment of burns. Though it is still too early to evaluate all of these agents, the best results seem to have been obtained with the aniline dyes and saline baths. Saline baths were used after it was found that with severe burns who had been in sea water for some time before being rescued were in much better condition than their fellows who were rescued immediately. It is very important that the cost of agents used be kept constantly in mind. In times of war with treatment on a mass production scale, the expensive agents such as sulfa-

hydryl and sulfadiazine are economically almost impossible to use.

Prompt and proper first-aid treatment will result in a lowered morbidity, less disfigurement, and a reduced mortality.

The appropriate treatment of shock is most important and will save many lives.

Burns of the face and hands should have special attention at the site of the accident and after the patient reaches the hospital.

The triple-dye is economical and probably more satisfactory than other methods when dealing with war produced burns.

Chemotherapy has an important place in burns and when used under proper supervision gives splendid results.

Carefully performed skin grafting, especially of the hands and face, should be done early as skin grafting by experienced operators have to a large extent decreased the high mortality of burns and done away with the terrible disfigurements of the past. The type of grafting which seems best suitable for the individual case should be used.

Professional Bldg.

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The Nasopharynx

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WE have chosen the subject of the nasopharynx or postnasal space because it seems to us that there is hardly a more important one for the otolaryngologist to consider. There is probably no region in the human body which in the past has received so much less than its share of attention consistent with its importance; and then, speaking guardedly, it may be that neither treatment nor any surgery that we have had to do has been less well done than that done on the epipharynx. Some recent writers have called it the forgotten area, or the "almost unknown region". Certainly it has been much neglected.

DEVELOPMENT OF EPIPHARYNX

To become fully aware of the tremendous importance of the subject, one has only to consider that here, speaking from the standpoint of embryology or anatomy, is the beginning of the tongue, palate, nasal cavities, sphenoid sinus, eustachian tubes and hypophysis. The development of these structures is not all accomplished at birth, but continues several years after and the results of this development depend in some measure on the treatment the postnasal space receives.

At birth the epipharynx is a very small, flat space. The soft palate is almost in contact with the rear wall of the pharynx. One might have great difficulty in passing an object as large as a No. 24 catheter into it. The posterior edge of the nasal septum, which in adult life is vertical, is during the first two or three years nearly horizontal. From then on the postnasal space undergoes rapid development and reaches its maximum about the twenty-first year of life.

This normal expansion of the space may meet with serious interference. It may, for instance, be too large at an early age, due to the failure of the hard palate to assume its proper size—a congenital defect. Then the nasopharynx is too large and there may be disturbances in the form of Rathke's pouch and the hypophysis. Possibly, the condition known as Thornwaldt's disease may have some connection with this disturbance. This will be referred to later.

It will be seen at once that serious aberrations in health may occur when the space is too large. Whirling air currents; dry, crusted mucous membranes; much greater incidence of infection; voice changes; ear disturbances; posterior sinusitis, etc., are some of these.

The defect which produces an undersized nasopharynx in the adult comes as part of that complex which gives the narrow nasal passages, Gothic palate, and rodent teeth—a syndrome far too common in human beings. While this condi-

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tion may be influenced by the over-development of the eustachian cushions or the enlarged atlas, both of which may encroach on the space, in the great majority of cases of deformed epipharynx the cause can be traced to enlargement of the pharyngeal or Luschka's tonsil.

ADENOIDS

Children are not born with adenoids. There is widespread misunderstanding about this term. A child comes into the world with a pharyngeal tonsil of normal size and texture, along with normal faucial tonsils, tongue, eyes and so on. The adenoid is a pathological structure which grows in the pharyngeal tonsil. The cause of this change has never been fully agreed upon, but we are pretty safe in assuming that it is due to infection. Neither in size nor structure is the tonsil a menace at the time of birth, but the great expansion of its elements in number and thickness and the formation of rolls and wings with deep sulci between, creates a very efficient retention center for bacteria and detritus, and a wonderful incubator. In addition to this, and probably no less of menace to health and development, is the obstruction produced in this important area.

The process of adenoid formation must begin very early in life, for signs of blocking of the eustachian tubes and nasal canals often come early. We must not overlook the fact, however, that the practice of keeping a child on his back so much of the time is not without danger, especially since the ear tubes are very short and larger in proportion at this period, and so more vulnerable. The ventilation of the nasal chambers is always of prime importance for a number of reasons, but at this time of life when the shaping of various structures is proceeding apace, the maintenance of good airways becomes of greatest concern.

As remarked above, an adenoid is an enlarged pharyngeal tonsil. The age at which this enlargement begins varies in different children. In some it never occurs. Our earliest case where interference was required was nine months, where the folds of the pharyngeal lymph mass were so succulent and thick that the obstruction became almost complete and almost no permanent shrinking could be made. Strangely enough, the faucial tonsils were not affected. The adenoid was removed successfully. The tonsils have never been removed. This, of course, was a very rare case. Ordinarily we do not encounter serious trouble from adenoids much before the third year. Few cases will not yield to conservative treatment, and we have striven not to resort to surgery before this age. As the part played by allergy in disturbances of the nose and throat becomes better understood, it is fair to assume that fewer "T. and A.'s" are going to be done by conscientious physicians; and it is only honest to say in all candor that far too many have been done.

The subject of pharyngeal lymphatics is most interesting and the problems that arise are with us always. Waldeyer's Ring is the name given to the distribution of lymphoid tissue in the pharynx and epipharynx. At birth, or before disease has set in, there is the flat, innocent mass of follicles at the roof of the nasopharynx; the palatine tonsils face each other between the faucial pillars; two flat masses lie at the base of the tongue. Between these islands are strands of reticulum and lymphatic tissue extending from the apex to the tongue and connecting the five tonsils into a somewhat horseshoe-like ring. Beside these more or less in-line masses, there are often irregular follicles scattered over the pharyngeal wall. These may often give the pharynx an ugly corrugated, angry appearance. There can be no doubt that these aberrant masses can act as portals of entry for infection and do contribute greatly to throat discomfort and recurring illness.

In the writer's experience, there has been hardly any problem more vexatious than this one of lymphoid hyperplasia. Selfridge applied the name "lymphoid diathesis" and described a type of case in which the body tends to replace the tissue whenever it has been removed. (It is difficult to appraise this question without a little self-criticism. The layman has had just cause for complaint, for there has been an appalling amount of poor surgery done. We have condoned the entry into our field of many men poorly qualified to begin work. "They have to get their experience", and we forget the cadaver. Everybody is doing tonsils, with the result, we are sure, that the adenoid-tonsil work has been the poorest operation in any department of surgery.)

There undoubtedly are many cases where it is quite impossible to remove adenoid and tonsils without some vexing and disfiguring regrowth of lymphoid tissue. However, if the tonsil be dissected out with its capsule complete,

it is fairly safe to say the tonsil will not come back. But the trouble arises with these flat masses in the pharynx and the lingual nodules which hypertrophy and become prominent when drawn up between the pillars. Many, many times the medical men of our group have sent such patients to us see if the "tonsils should not be removed." But the worst punishment has come when some of our own patients have fallen into the hands of kindly competitors who look in the throat and say, "Why don't you get this child's tonsils out?" Maybe the parents are loyal enough to come back for an explanation; sometimes they are not.

The writer has learned to meet these difficulties by explaining the tendency of the lymphoid tissue to regrow and urging the parents to return at stated intervals for rechecking and maybe to have a little cautery work done. Then the lingual nodules can be smoothed out and the masses behind the pillars touched away. It is gratifying to see how smooth the pharynx may become under such treatment, when it is necessary.

But we were considering the adenoids. In the removal of these growths, we have always urged the sharp curette—razor sharp. With such instrument and a delicate touch, it is possible to remove the adenoid intact, wing and all, without mutilating it and without injuring the periosteum beneath. The largest curette is selected that will pass behind the mounds without bruising them. A small loop is then used to remove masses in Rosenmuller's fossae. And finally, the finger completes the procedure.

We are justified in pausing a moment on this subject—it is a very important one. There is much at stake. If the procedure be not completely carried out or clumsily done, several unfortunate sequellae may ensue. The hearing may be jeopardized. If remnants of lymphoid tissue are left in the fossae or hanging about the cushions of the tubes, ventilation of the tympanum is still impaired. Or, the same result follows if adhesion bands form from the roof of the pharynx to the mounds. If undue force is used and the bone bruised or the periosteum removed, dry patches with crust formation make for discomfort and unending catarrh. The breathing passage may still be obstructed.

Dr. Beck used to insist that the adenoid operation should always be carried out under direct vision. This is entirely feasible. For this reason, the writer has never used the adenotome. There does not seem to be good reason for doing so. With a sharp Stubb or Barnhill curette, one can by "angling" or shifting gather the entire growth into the loop before cutting it off, and this can all be done in direct vision.

For a long time the writer was puzzled to know what to do with the masses that hang directly under the mounds and extend down to the lingual region, or the so-called pharyngeal bands. These are often so thick and rough as to look very much like coxcombs. At first we used a punch and bit off as much as seemed wise. This often produced bleeding that was at least annoying. Almost surely some of you are saying, "Leave them alone", but these things are often very troublesome. They may be just as efficient as foci of infection as the tonsils themselves. We have seen many of these growths so large and so cryptic as to appear typically like the tonsils. For some years past it has been our practice to use the actual cautery. By a puncture touch, not too deep, these masses can be induced to fade away, leaving the pharynx delightfully smooth.

Before leaving the subject of technique, please allow a brief reference to the matter of hemostasis. Of course, the prominent vessels under the tonsils are always sutured. Much more important, however, is the question of bleeding under the adenoid. Under no consideration should a large blood clot be allowed to remain here. We can hardly repress a shudder when we see an adenoid removed, piecemeal by a few quick strokes of the curette, and the patient then turned over to stop his own bleeding. The postnasal space and the nasal chambers may remain full of blood for an indefinite time, and the effect on the middle ear and the posterior sinuses need only be imagined. We have always thought it necessary to leave the patient in the original position, under a bright light, using a bright light, using sponges, even styptics, until the space remains absolutely dry and clean. There can't be an argument about this statement: *Time spent in attending to these details will yield dividends in good hearing later in life.*

One other reference to the technique of adenoid removal may not be resented. Today, it is difficult to see how we ever got along without the suction pump. A clean field seems now one of the indispensible conditions of good surgery.

A few years ago we attended a meeting of the American College where a paper was given on lung abscess. Sixteen cases were presented—all of them from one of the large tonsil clinics of the country where they boasted of their speed, but let the patients stop their own bleeding.

RELATION OF HEARING TO ADENOIDS

About the subject of hearing, mention should be made of the work of Crowe and associates at Johns Hopkins during the past ten years, and reported in the July, 1940 number of Laryngoscope. Theirs has been research work in which 15,000 audiometer and tuning fork tests have been made on people of all ages; 3,000 on children. They have concluded that most of the hearing troubles which best people in mature years begin in childhood. If the widespread deafness which exists in the nation today is ever to be corrected, help must begin in the early years of life.

Crowe states that adenoids recur so often after operation that it is quite to be expected, and that lymph nodules are found about the eustachian cushions which cannot be removed by surgery and these are prone to hypertrophy with consequent interference to tubal drainage and ventilation, low-grade eustachian catarrh and chronic progressive deafness. We think that the adenoid tissue in the location of the pharyngeal tonsil can and should be removed with very few recurrences. The small masses about the mouth of the tubes may very well need other treatment. For all of these, Crowe proposes the use of radium or its decomposition product, Radon. This is applied to the nasopharynx in glass tubes running along the floor of the nose. Lymphoid tissue is highly susceptible to radium emanations, and its use seems to offer the best method yet devised for handling these troublesome masses which often play havoc with the hearing organ. The dose which they have used is much lower than that which would do harm to other tissues than lymphoid. No scar tissue forms after; no atrophy occurs in other tissues. They have followed many cases over a period of ten years; the results have been very promising. The chief value of radium lies in the fact that it can be applied directly to the tissue which is to be removed, while x-rays are much more diffused and have to pass through so many other structures before reaching the area sought that much damage may be done by the strong current required to reach the tubes. Apparently this control of lymphoid tissue in the pharynx offers the best prospect yet discerned for the amelioration of the widespread chronic progressive deafness.

DIAGNOSIS

The inspection of the postnasal space should be an important part of every physician examination and is, we fear, often passed over quickly. In small children the view with the mirror or even the pharyngoscope may be difficult to obtain, so that palpation with the finger must be resorted to. In larger children and adults the information obtained by a careful examination is of great importance. In the epipharynx there is the line of demarcation between the squamous epithelium of the pharynx and the ciliated lining of the nasal spaces. This is a highly vulnerable region—the most vulnerable to infection; easily the number one portal of entry. Certainly the great majority of colds begin here and spread to the nose or to the tonsils and lungs, especially in the very young, where the distance from the nasopharynx to the lungs is very short. In our own experience, the first sign of beginning cold is the tell-tale stinging of the postnasal lining. And it seems that we can remember more people who have complained bitterly about this distress than any other. Taken early, there is more chance of giving help here, for the infection has not yet entered deeply into the tissues. A well-placed application of guiacol or weak iodine in glycerine may often check the onset, while after deep invasion has occurred as in the tonsils or glands of the neck, local applications are of little avail.

The appearance of the mucous membranes of the nasopharynx is characteristic in the allergic affections; the pale swellings on the septum, the pale, polypoid turbinals the boggy mounds, all tell their tale. The diagnosis of posterior sinusitis is to be found here, either by the presence of the purulent exudate under the sphenoid ostium or the red band following down the posterior wall.

In chronic conditions adhesions in Rosenmuller's fossa and about the mounds require repeated attention. Chronic postnasal catarrh is a frequent affection; the dry membranes or crusted secretions indicate either underlying sinus disease, deep injury from surgical procedures, or ulceration on the site of Rathke's pouch, the so-called Thornwaldt's bursa. The hypophysis de-

velops from a pouch or offshoot of the rudimentary pharynx in fetal life. When this sac persists after birth, it lies under the pharyngeal tonsil and discharges a mucus at its lower margin. Apparently nothing happens to this rudimentary structure until adenoids are removed, when it may be bruised or become infected and obstructed and form a cyst or discharge and form crusts. These have bad odor and taste. From this focus there may be a constant postnasal discharge, frequent respiratory infections, occipital headache, possibly fever, tubal obstruction, and earache. Severe complications of rheumatic fever, asthma, arthritis occur. Staphylococcus is the organism most often present. The condition is usually found by use of the nasopharyngoscope. Eagle reported sixty-four cases from Duke University in 1939.

Poor nasal breathing often occurs through the backward growth of polyps, either from the antra or from the posterior ends of the turbinals. These are often missed. A prominent business man recently came to my office complaining that he could not breathe through his nose, in spite of the fact that a very good nasal surgeon had not long before performed a submucous resection. A glance into the postnasal space disclosed a large antrum polyp hanging low on the palate.

Statements in the text books that postnasal catarrh is always a sign of sinusitis does not square with the facts. Nor does the so-called postnasal drip necessarily mean a serious pathology of the accessory sinuses of the nose. There is considerable secretory tissue in the nasopharynx. Large quantities of mucus normally move down from the sinuses and nasal mucous membranes; this is often tenacious, dust-laden or purulent. When this material reaches the space where the angle changes, there is a slowing of the current and a chance to rest and coagulate. Added to this, there are adenoid sulci. When present, they are often foul and efficient culture locations. It is no wonder that this place becomes such an important focus for the generation of systemic infections. Rather than lay the blame of the postnasal disturbances to the accessory sinuses, the reverse is far nearer the truth, especially as to the posterior cavities. And as to the eustachian tube and middle ear, undoubtedly the postnasal infections are the starting point for practically all hearing disorders, at least in early life.

Surely we have now established our thesis: that failure to give careful attention to the nasopharynx is a very serious fault on the part of any physician. We are convinced that many men have not considered the matter very important. Great stress has seldom been placed on the question, either in the literature or on the programs of the various meetings. Then, too, the technique of postnasal examination cannot be called easy. The method of approaching the patient is important; his entire co-operation is essential. A suave, gentle, ingratiating manner alone can put him at ease. Even then his reflexes may be difficult to manage.

The indispensable requirement is good lighting—the whiter and brighter the better. The acquiring of complete mastery of this part of the examination is one of the most important things the otolaryngologist has before him. There are advantages in the indirect method which the nasopharyngoscope cannot offer, though the latter is also indispensable. In both methods much depends on long practice to acquire facility of manipulation and ability to interpret what is seen. The time-honored picture one gets in the text books of all the postnasal structures placed at once on a little mirror is very misleading.

Tumors in the nasopharynx are not overly common, and many of them are not found until large enough to produce obstruction. Of the true tumors, fibroma is most often seen. Fortunately, it yields in this location to treatment by radium. Next to adenoids, the growth most often causing obstruction to breathing and nasal drainage is the so-called mulberry turbinal or polyp on the posterior ends. While apparently a simple procedure, many of us have spent anxious hours in controlling bleeding that follows the removal by snare. Hajek once gave us a valuable lesson in Vienna. He placed the snare over the mass, tightening slowly with gentle backward jerks. After the wire is tightly clamped, the patient is placed in a comfortable position for an hour or more, when the growth may be pinched off without any fear of bleeding. We have used this method on many cases with good results. Twenty minutes to one-half hour is sufficient time for keeping the snare in place. The cautery may be used just as well in many cases where the growth is firm and not pendant.

Finally, one is fully repaid for habits of careful inspection if he discovers a malignant growth in an early stage when it is amenable

to treatment. These tumors are squamous celled carcinoma or lympho-epitheliomas, the former twice as common as the latter. They grow slowly from the lateral wall near the mouth of the eustachian tube, appear firm and finely nodular. Surgery has no place in their treatment and biopsy is absolutely contraindicated. Vigorous and early radiation offers the only hope, for most of them are fatal.

THE COMMON COLD

Believing that the great majority of colds are generated in the nasopharynx, the writer has paid particular attention to this area. Questioning the patients in detail about their feelings, one finds that a large number have their earliest sensations in the postnasal space, along with slight chilliness and nasal congestion. In the very early stage, application of glycerine guiacol after shrinking the membranes is all that is required to abort the infection. If too much time has elapsed and postnasal pain is marked, a hot alkaline nasal douche and glycerine ichthyol may be used.

Generally the earlier the treatment the more chance of arresting the infection. We have come to think very much of iodolake in 2 c.c. doses in these early cases. This, along with two or three glycerine guiacol applications the first day, will work wonders with many colds. The great drawback to all such is that patients go on with their daily routine of exposure, neglecting themselves until the infection is well established, and by blowing their noses and alternately chilling and sweating infecting all their crypts, sinuses, and ears. Physicians' work will have to be educational for a long time to come before we shall gain any control over the common cold. The writer in all his early life was an inveterate sufferer from colds, sinusitis and bronchitis. For several years attacks have been almost nil. We believe that self-vaccines deserve the credit, along with better general health.

CHRONIC POSTNASAL IRRITATION

Chronic postnasal irritation is a more difficult affliction to handle. Many of these patients have been long time sufferers with bad breath and bad taste in the morning, when they expel semisolid chunks from the postnasal space. They have recurring spells of burning pain in the vault, severe headaches, tired feelings, gastric distress, and ill temper. Arthritis is often noted, tinnitus, and failing hearing; severe nasal colds followed by bronchitis and frequent hoarseness.

The vault of the pharynx is usually covered by glaring tenacious mucus or mucopurulent exudate, often coagulated. When this is wiped off, the membrane is found to be thick, corrugated, and in acute exacerbations especially, deep red in color. The mounds and turbinals are markedly swollen; the uvula also at times deep red in color. In most cases the tonsils, if present, are not affected or only moderately so.

Since beginning this paper in April several very typical cases have been seen. A tall, heavy-set sheepherder, as tough as oak, said he had never had colds but every time he got wet a terrible soreness back of his nose set in. This attack was so painful he actually cried in the chair. X-ray films of the accessory sinuses were negative. The nasopharynx was heavily coated, very red, with a distinct pit in the center above. Diagnosis of Thornwaldt bursa was made and curettement advised.

A fifteen year old high school girl complained of bad taste and odor and something coming down the throat all the time. Tonsils and adenoids had been removed five years before, but the discharge had never stopped The mirror showed a volcano-like mound with a distinct sinus in the center. Operation is to be had in June.

A stenographer thirty-five years of age had had frequent colds which always lasted "a terrible long time." They always began with the burning pain above the palate. X-rays were negative. The membranes of the nasopharynx were thick, granular and red.

A young man of sixteen years had the telltale soreness behind the nose every two or three weeks and a hacking cough for six months. The vault was deep red in color. Over the right middle turbinal a stream of creamy pus could be seen. Irrigation of the sphenoid sinus cleared up the cough and the soreness.

A man thirty-two, an office worker, had recurring attacks of postnasal soreness and hoarseness. The tonsils had been well removed and x-rays were negative. This time the uvula was as large as the thumb and deepest red. The vault was filled with thick mucopurulent material. After cleansing and three applications of glycerine, the lining could be seen to be heavily corrugated, red and pitted. The examination with the nasopharyngoscope revealed a slightly rounded

vault and a dark depression anteriorly from which mucopurulent secretion oozed.

These cases and many others have been so characteristic and the scarcity of reference to such in the literature so marked, that we are convinced that the nasopharynx must often have been neglected.

In addition to the treatment referred to we have made much use of the silver preparations. If proper warning be given about their dangers, we can see no objection to their use, for they do give patients something to do for themselves. We refer again to the self-made vaccines. In our hands they have proven of inestimable value.

One other brief mention of a subject that has been much in print; namely, the use of oil sprays and drops. In our practice, we have relied on them very much. After every nasal douche or displacement we think it highly important to replace the mucus coat lost by an oil film. We have never seen the slightest harm, and we think there must have been some grievous error in technique to bring about the reported cases of oil pneumonia. Some care, of course, is necessary. If you put a baby on his back and pour oil into his short nasopharynx, naturally some may go into the lungs. But there is reason in all things. We are inclined to think the danger has been much overemphasized.

Arteriosclerosis and Hypertension

(Resulting from Disturbed Acid-Base Equilibria)

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IT is not within the scope of this paper to discuss as deep a subject as the title implies but rather to offer a new basis for an understanding of one or more factors overlooked in the etiology of arteriosclerosis, hypertension and certain allied disorders. Among the more important etiologic factors that should command attention is the disturbed acid-base equilibrium of the blood.

In health, the acid-base balance of the blood remains remarkably constant at a pH about 7.4 notwithstanding carbonic, phosphoric, sulfuric and other organic acids are continually being formed in the processes of metabolism. The normal reaction of the blood is protected by three lines of defense, namely the buffer systems, the excretion of CO_2, and the excretion of fixed acids. Carbonic acid H_2CO_3, a product of tissue activity, is produced in greater quantities (800-900 gms) than any other acid in the body. Carbonic acid is buffered mainly by a base released from hemoglobin and to a minor extent in the plasma through the protein and phosphate buffer systems. When carbon dioxide enters the blood, the sodium bicarbonate of the plasma increases. As the blood passes from the arterial side to the venous, CO_2 is absorbed and diffuses into the red blood cells. Herein, through the action of an enzyme—carbon-anhydrase—the CO_2 is converted into carbonic acid. During rest the pH of the venous blood is reduced (pH 7.28), being more acid than the arterial (pH 7.4). In disordered blood states, e.g., inactivation or dysfunction of the enzyme—carbon-anhydrase—the carbon-dioxide conversion is interfered with, the carbonic-acid becoming decreased, while the bicarbonate increases. The result here is an alkalemia. When carbonic-acid production is increased, the bicarbonate becomes reduced as the base is given up for the neutralization of the strong acids, and an acidemia then results. Carbonic acid readily dissolves calcium-carbonate to a considerable extent, forming a soluble acid-calcium-carbonate.

It is in accord with the laws of chemistry that the diffusibility of calcium varies with the pH of the media. This applies also, more or less, to magnesium and phosphorous. For proper use in the system, not only must the ratio between them, and the absolute amount of each at that ratio be maintained, but the diet, the digestive juices and the body fluids in general must remain in proper normal acid-base equilibria. (One notes that in a well-marked case of rickets the gastric juices are not only less acid than normal but calcium retention is low, the intestinal contents becoming decidedly alkaline. Such a state is not conducive to proper absorption and utilization of calcium, magnesium and phosphorous.) Plasma is normally poor in magnesium and potassium but rich in cal-

cium and sodium; whereas in the cells the conditions are reversed, these showing a high concentration of magnesium and potassium but lacking in calcium and sodium. A magnesium deficiency is often indistinguishable from a calcium deficiency. Magnesium has the positive function in the body of ion balance, and the maintenance of the proper blood pH. It also plays an important role in the biochemic and physiologic processes of both animal and vegetable life, having the ability to preserve the electrolyte concentration of the fluids, and the maintenance of the osmotic pressure in both intracellular and extracellular solutions, etc. There is some direct relationship between the functions of the parathyroid and the biochemistry of magnesium as in dysfunctions of this gland the body magnesium content is reduced.

A decreased production of carbonic acid (alkalemia), over a period of time, causes a supersaturation of the blood with calcareous matter which, being insoluble in any but acid media, is thrown out of solution to be abnormally deposited in the tissues. Such a state would be a major etiologic factor in arteriosclerosis, Paet's disease, myositis ossificans, and certain other calcium-metabolic disorders. As the pH of the venous blood is more acid than that of the arterial blood, the salts there are more readily maintained in solution, a factor that could well explain the relative rarity of phlebosclerosis.

REGULATION OF ACID-BASE EQUILIBRIUM

Upon the ratio $H_2CO_3/Na\ HCO_3$ the pH of the plasma depends. Rapid adjustments of this ratio are brought about mainly through the exquisite reduction in plasma-bicarbonate, through its decomposition by acid, is met by increased pulmonary ventilation with the elimination of carbon-dioxide and water by the lungs. Low arterial and alveolar CO_2 tensions are therefore associated with a low alkali reserve. On the other hand, when excess CO_2 is contained in the blood, a compensatory increase in bicarbonate results. Thus high arterial and alveolar CO_2 tensions are associated with high alkali reserve. The hydrogen-ion concentration of the saliva is found to vary directly with the CO_2 content of the blood; when CO_2 tension in the blood is high, more CO_2 finds its way into the salivary secretion to lower its pH. Ingestions of sodium bicarbonate, while reducing acidity elsewhere, increases the acidity of the saliva as a CO_2 tension results. In forced breathing the H-ion concentration of the saliva is raised as it lessens the amount of CO_2 in the saliva.

ARTERIOSCLEROSIS

No one cause is known for arteriosclerosis but a number of factors enter into its etiology. Recent study shows that before the onset of the disease, certain physico-chemical changes occur in the blood and the vessels. (As there is no clear-cut conception of the various subdivisions, the generic term, arteriosclerosis, is used here to include atherosclerosis, Monckberg's sclerosis, arteriolar sclerosis and senile.) That calcification plays a prominent role is well known but the factors determining the lime deposition have long remained a mystery. It is thought by some that the onset of degenerative change is secondary to deterioration of the elastic tissue of the intima and media which, by weakening the arterial wall, permits distention of the vessel. The stretching, it is presumed, interferes with the blood supply of the vascular wall; the intimal thickening being looked upon merely as a compensatory process. Others believe that arterial calcification is simply a particular type of dystrophic calcification, or dysthesia, not specific in nature but induced by a toxic agent. Calcium deposition in the arterial walls is often a pronounced feature of meteastatic calcification, this term implying a translocation of calcium from the skeleton to the soft tissues. Such an organic disturbance has been observed in animals fed excessive doses of parathyroid, lipoid and cholesterol-rich food, irradiated ergosterol, and excess vitamin-D. Though such calcium and lipoid deposits may occur in any of the soft tissues, the arteries, kidneys, and lungs are especially susceptible to calciflcation. Lime salts, cholesterol-ester and lipoid depositions, hyaline thickening, and fibrosis, readily occur in any tissues where the cells are more alkaline in nature. As calcareous matter is readily deposited in fatty material, in alkali media, the first evidences in the tissues would be the cholesterol and lipoid depositions.

Arteriosclerotic changes make their appearance first in the minute ramifying vessels (vasa vasorum) which become obstructed by deposits, this in turn leading to anoxia and degenerative changes in the walls of the arteries. The salts, lipoids, etc., deposited in these and other soft tissues, have the same composition as the main mineral constituents of bone. Dried bone con-

tains about 31% organic matter combined with 69% mineral matter. Of this about 59% is tricalcium phosphate, 1½% magnesium phosphate, and 7% calcium carbonate. Human bone frequently contains calcium fluoride to the extent of 2% though the quantity of fluorine, compared with other constituents of bone, is extremely small. It may play the part of a catalyzer, acting as a sensitizer for the phosphates and enabling the phosphorous and calcium to combine with the tissues. The percentage of fluorine in calcifeid vessels is yet to be determined. The action of fluorine somewhat resembles the specific effects of vitamin-D and sunlight, both acting as catalytic agents in depositing calcium and building bone from the calcium and phosphorous complexes.

HYPERTENSION

Hypertension, per se, is not a disease but a symptom peculiar to several hypertensive-producing disorders, e. g., cardio-renal-vascular disease, endocrine dysfunction, exogenous and endogenous toxicoses, drugs, etc. Like arteriosclerosis, there is more than one etiologic type and more than one precipitating factor. One common cause of hypertension is intrarenal vascular imbalance where certain hypertensive agents are produced and secreted, e. g., angiotonon, methylguanidine, adrenalone, agmatine (from arginine), tyramine (from tyrosine and phenylalanine), and renin (which may be tyramine). Some of these pressor substances are not peculiar only to kidney tissue as they are found elsewhere in the body. Certain extracts of kidney tissue contain counter-balancing pressor substances but they may be produced in insufficient amounts to keep pace with the relatively large amounts of hypertensive agents produced. One such pressor substance is the enzyme, tyrosinase, having the ability of preventing tyrosine and phenylalanine breaking down to tyramine, and which also inactivates tyramine. This enzyme has been used in lowering the blood pressure but apparently is only of therapeutic value in hypertension the result of a tyraminosis.

CHANGES IN THE BLOOD pH

The pH of the blood in health varies but little. In disease, the pH, unless in the terminal stages of uremia, diabetic coma, eclampsia, starvation, etc., never becomes definitely acid, i. e., reaching a pH below 7.0. A reduction in the alkali reserve may occur with little or no change in the blood reaction. The limits of the pH compatible with life are probably neither higher nor lower than 7.8 and 6.8. A pH of 7.0 results in complete heart block. Rises in blood hydrogen-ion concentrations (alkalemia) cause not only a vasoconstriction but also act as stimuli to the vasomotor center to contribute to a general rise in blood pressure. (In healthy carnivora the alkali reserve parallels the blood pressure, and in advancing years, an alkalosis is a common occurrence.) The rise in the H-ion concentration occurring when sodium bicarbonate is ingested over periods of time, results in vasoconstriction, and hypertension, and also causes the circulating hemoglobin to hold more firmly its gathered oxygen. Such a condition exists in those with abnormal alkali retention. Alkali poisoning is known to occur in individuals abnormally sensitive to alkali therapy. The important changes in the blood in an alkali-toxicosis are: a definite uncompensated alkalemia, increased C/N ratio, hypercalcemia, and other manifestations. A long-standing alkalemia, and alkalosis, lead also to severe nitrogen retention, anoxemia, calcium and lipoid deposition, fibrosis and tissue breakdown through lowered tissue respiration. (Alkali therapy also exerts a deleterious effect upon both the C and the B-Complex vitamins, both being unstable except in acid media.) Probably some of the symptoms of chronic alkali poisoning result from destruction of these vitamins. An alkalemia, and alkalotic states, by causing vasoconstriction, lead to reduced blood supply to the vasomotor center, stimulating it that a general blood-pressure rise occurs. An alkalemia also exerts deleterious effects upon such vasodilating substances as choline, acetylcholine, histamine, etc., which are susceptible to alkali and become completely inactivated or destroyed in a solution of pH 8.0.

ACIDOSIS AND ALKALOSIS

Much confusion has arisen over the terms "acidosis" and "alkalosis". Acidosis cannot mean any real acidity of the blood, i. e., a blood pH below 7.0 for this is incompatible with life. Alkalosis carries the corresponding meaning of an increased alkali reserve. This may or may not be associated with a rise in the blood pH. The terms suggested for these acid-base states are alkalemia and acidemia. The British Medical Council has recommended that the term acidemia be used for a state in which the pH is lowered, and that the term acidosis be restricted to indicate only a lowered alkali re-

serve with unaltered pH. Alkalemia would indicate a blood state in which the pH was raised; alkalosis would be retained to indicate an increase in the reserve alkalinity.

An alkalemia may result from an uncompensated alkali excess, the $NaHCO_3$ is increased without a proportional rise in the H_2CO_3. This may result from ingestion of large quantities of alkalis, or from loss of HCl by vomiting. An uncompensated CO_2 deficit also produces an alkalemia. A disturbance of this nature may result from forced breathing, hyperventilation induced by hot baths, high altitudes, and shallow breathing.

When there is an uncompensated CO_2 excess, an acidemia results. The carbonic acid is increased but is not balanced by a proportional rise in the sodium bicarbonate. The pH is lowered. Such a condition occurs in obstruction to breathing, and in depression of the respiratory center by morphine. The pH of the blood may also be lowered in an uncompensated alkali deficit, the bicarbonate being reduced without there being a parallel reduction in the carbonic acid. This is noted when large quantities of fixed acids are produced as in diabetes, the terminal stage of nephritis, etc. Low calcoric, suboptimal diets, and starvation, will lower the pH, and the blood pressure, as glycogen is exhausted and increased protein breakdown occurs with the production of phosphoric and sulfuric acids.

COMMENT

Should the body tissues and fluids not remain in normal acid-base equilibria, cell-activity becomes altered, and certain parts eventually undergo pathologic or carcinomatous change. The change may be a degenerative one such as that occurring in arteriosclerosis, or, tissues become less resistant as to accept bacterial and virus invasion. Tissues with altered pH readily become suitable locales for the growth of various infectious agents. Each living organism requires a certain hydrogen-ion concentration for normal activity, growth and survival. Any material change in this concentration fundamentally alters the organism. Two organic diseases intimately allied to acid-base disturbances are pernicious anemia, and beriberi. In both these disorders the cord degenerates apparently the result of changes in the acid-base balance which is brought about mainly by an achlorhydria, and a vitamin B_1 deficiency or destruction. (An achlorhydria often follows a B-Complex avitaminosis.) The central nervous system, spinal fluid, and allied structures, like other body tissues, are subject to change in acid-base equilibria. Such changes, for instance, may occur prior to, and during the invasion by the poliomyelitis virus. As is known, this disease causes a degeneration of the central nervous system and the gray matter of the cord, but studies have not been undertaken to determine the various changes in the H-ion concentration of the tissues both before and after infection.

One notes that the mycobacterium tuberculosis requires a media of a pH under 7.4 for optimum growth; pure cultures being best obtained in slightly-acid media. All organisms except the tubercle bacilli are killed in 15% of sulfuric acid. Cultures of the bovine type are at first acid but become alkaline while those of the human species never do so. Tuberculin is highly acid. In certain infections as tuberculosis, leprosy, tetanus, and others, the alkali reserve shows the average figures of the actual acid-base reactions to be diminished. This fact alone would indicate instituting some form of alkalotherapy to help shift the pH toward the alkaline side. The dietetic and therapeutic measures prescribed in tuberculosis and leprosy are curative in that they induce an alkalemia, raise the blood pressure, aid in calcium and lipoid deposition, cause production of fibrosis and the walling-off of foci of infection. Hypotension is a common feature, and an acidosis is one of their most frequent complications. Prior to infection, an acidemic state may be a predisposing factor. An acidotic state will set up a vicious cycle in that it retards the processes of organic combustion, this retardation further increasing the acidity of the body fluids and tissues. The acidemia, and hypotension is aggravated by the low caloric intake, acidifying diets, and the fever accompanying exhausting illnesses. An induced alkalemia in both diseases would favor lime deposition and fibrosis, and such areas would naturally become anoxic, therby exerting deleterious effects on the aerobiotic organisms. High altitudes cause an alkalemia, hyperventilation, and raise blood pressure, all of which are desirable. Sunlight and suberythema doses of ultraviolet irradiation are destructive to the bacteria, raise the blood pH; increase cholesterol content and aid in calcium deposition with fibrosis of the tissues at the site of the deposition

Diets found beneficial, as liver, kidney, brain, milk, egg yolk, butter and cod liver oil, all favor hypercalcemia and lime deposition. Parathyroid and certain fluorine compounds would appear indicated also in phthisiotherapy as they exert similar effects in the system.

CONCLUSIONS

Conclusions are always questionable when based upon the realms of probability, but a summary of the evidence shows that long-continued alkalemic and alkalotic states could well be main etiological factors in arteriosclerosis, hypertension, Paget's disease, Buerger's disease, myositis ossificans, and certain calcium-metabolic disorders, bone and joint affections, etc.

An Alkalemia could arise through an uncompensated alkali excess, or from an uncompensated carbon dioxide deficit. It results also from loss of hydrochloric acid as by vomiting, ingestion of alcohol when it reaches a concentration in the blood of one-tenth per cent; from forced or shallow breathing; asphyxia; hyperventilation induced by hot baths, high altitudes, vasoconstricting drugs, tea, coffee, tobacco; fluorine compounds, diets limited solely to fruit and vegetables on account of excess base-forming elements, and to ill-advised long-continued alkalotherapy.

An alkalemia results in a supersaturation of the blood with calcareous matter and causes calcium deposition in any of the soft tissues by throwing out of solution those salts insoluble in any but acid media. The vasa vasorum, due to their minute size, are first to become obstructed, this in turn leading to an anemic and anoxic state of the arterial walls. Local anemia and anoxemia in any part favor calcification and degeneration. Any tissues more alkaline than normal and where the CO_2 production is minimal are liable to lime and lipoid deposition.

An alkalemia acts as a stimulus to the vasomotor center to cause further vasoconstriction and a general rise in blood pressure. It exerts also a deleterious effect upon both the circulation and the cardiac output. An alkalemia neutralizes the organic acids concerned in maintaining in solutions those salts soluble in acid media only, and are also necessary for other body's natural functionings.

Abnormal alkali retention could be a major factor in hypertension.

Alkalis, as sodium bicarbonate, cause a rise in blood pressure, and prevent the release of oxygen in hemoglobin. Such a state eventually leads to lowered tissue respiration, anemia, anoxia and tissue breakdown.

Sodium bicarbonate tolerance tests to determine the retention of alkali should reveal potential or latent hypertension, and arteriosclerosis. A long standing alkalemia, and extended alkalotherapy, exert destructive effects upon the vitamins C and B-Complex, and could well cause signs of these avitaminoses.

A defective blood-enzyme state, as a fault in carbon-anhydrase, and other factors preventing proper conversion of CO_2 to carbonic acid will lead to an alkalemia and alkalosis.

The study of the physiology of the acid-base equilibrium of the body shows the importance of metabolic disturbances in the beginning and development of certain disorders, though some of these, no doubt, depend upon special dysergic conditions of the patient.

The proper dietary and prophylactic measures appearing indicated in arteriosclerosis, hypertension, and certain other allied, and calcium-metabolic disorders, are diets that tend to keep the patient on the "acid side". Contraindicated are the strict vegetable-fruit diets (on account of their high alkalinity ash), and also the milk-egg ones (due to high cholesterol content). With the exception of kidney, liver and brain (for the same reason), there appears no justification in eliminating meat or fish from the diet. An induced acidemia, i.e., shifting the pH to the acid side, and acid-therapy, (as phosphoric, ammonium chloride, etc.) should aid in preventing further lime and lipoid deposition. It would also exert hypotensive effects though there is insufficient proof that such a shift would dissolve some of the pathologically deposited lime salts in the soft tissues. There is a definite ratio of calcium:magnesium:phosphorus in the body. Additions beyond this ratio of any one of them will create a deficiency of the others. A deficiency may result either from an insufficiency of the elements in the diet, or from faulty utilization, absorption, or interference by certain mineral supplements which reduce their availability. Though calcium and magnesium ions have many points in common, an excess of the one will speed up the elimination of the others. When animals (and humans?) are kept on feedings too high in magnesium carbonate, there re-

sults a high incidence of renal calculi and other disorders. These disorders can be corrected, and prevented, by the addition of excess calcium carbonate to the diets. A magnesium deficiency, by causing a relative calcium increase in the body (hypercalcomosis), could also be a factor in the etiology of arteriosclerosis and like calcium-metabolic disorders. Magnesium has the positive function in the body of ion balance, and the maintenance of certain salts in solution, etc.

When extensive degenerative changes have occurred in the arterial walls, the lime salts having replaced normal muscular and elastic tissues, then any therapentic measure would be of no avail.

Routine examinations of the blood should include, when possible, the hydrogen ion concentration. If found to vary from the norm, the causes should be ascertained and corrective measures instituted. A more simplified method should be devised to permit one to quickly determine the H-ion concentrations.

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Medicine and the Antitrust Act*

A Discussion of the Government's Suit Against the American Medical Association

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MR. Chairman, Gentlemen of the Medical Profession, and Fellow Students, may I begin with two or three words of explanation? If I appear before you as a layman, in respect to the subject with which we are dealing, you appear before me as laymen. We are dealing with a technique very different from medicine. I shall, so far as I can, avoid the words of the law, because they are many, complicated, and interminable. But the difficulty is more than a language difficulty. The process by which the law operates is so different from that which you employ in your everyday work that it is not easy to follow.

Second, I shall, during the course of this discussion, wander to and fro, down the ages. I may mention the date 1603, 1623, or 1819, or other dates which seem to savour of the antique. I would hardly expect if I went into one of your offices to find you invoking Galen, Harvey or one of the ancient worthies. If, bothered by symptoms of mine, you should make reference to "21 Jacobus I, Chapter 3," I should probably throw up my hands in horror. But the ways of law are decorous and its authorities venerable. If mine adversary quotes a case of 1621, and I can counter with one from the vinting of 1601, I take that round.

Third, when you resort to law, you invoke a very stubborn diagnosis. You commit yourself to a series of moves which seems interminable; your case moves from court to court; between the trial and the appeal courts it may even shuttle up and down. As it goes forward—or backward—it is, therefore, essential to keep clearly in mind exactly what the motion is and what stage in the litigation has been reached.

Finally, my concern is with the case in perspective and in general significance. I have no disposition to pass upon the guilt or innocence of the parties concerned. I shall review particular acts only so far as is necessary to throw into relief the legal questions which are of professional interest.

This is the autumn of the year 1941; yet the events which pass in legal review all occurred during the years 1938 and 1939. If you had a patient whose symptoms were diagnosed in 1938, and in 1941 you were still not free to prescribe, I wonder what the practice of medicine would be like. Yet the case still remains on the court's calendar and months, even years, may pass before finis can be written to the story.

Late in 1936 a group of government employes,

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mostly connected with the Home Owners Loan Corporation, decided to form a "medical cooperative" known as the Group Health Association. When that was done, the laymen in charge went to the officers of the District of Columbia Medical Society, disclosed their plans, and called for cooperation. In those early months, four courses of action were debated by the officials of the Medical Society. One was to be strictly neutral and "let the thing go to the devil." The second was "here is an experiment, maybe it won't get anywhere, maybe it will, let's lend a helping hand. It certainly can't make good as outlined, but maybe it can be converted into something that is worth-while." The third was to checkmate with a group plan under the auspices of the local organization. "Let's set up a scheme of our own which goes in the same direction, preserves the ancient liberties of the profession, and avoids the bad features of Group Health." And the fourth was, "let's become militant and give the thing the works." There were people in the Medical Society who took all of these various positions. What the general sentiment of the Society was it is impossible to say. The officials were in charge; and, though there was delay and difference of opinion little by little they drifted toward the fourth position, that of militancy.

The first legal move was a flank attack. The officers of the Medical Society persuaded the District Attorney to ask the court for a declaratory judgment to the effect that "Group Health" was: (a) without a license doing an insurance business; and (2) as a "corporation" was engaged in the illegal practice of medicine. Generally speaking, the courts will not in the abstract make a declaration on what the law is. Usually they wait for "a genuine case in controversy." Then the issue is carried up through the various tribunals to—as the Chief Justice has put it—"the court of ultimate conjecture and final error." A declaratory judgment is gradually coming into the law. It is to litigation what prevention is to the practice of medicine. In a word, the law is declared in advance so that people may suit their actions to it and avoid the bother and expense of needless conflict.

These motions were in due course argued before District Judge Bailey. He admitted "Group Health" to be a corporation, but denied that it was engaged in practicing medicine. It was not the association, but the physicians employed by it, who were practicing medicine. Nor was it concerned with the insurance business. Instead its members had banded together into a "consumers' cooperative" to make a collective purchase of medical services. In medicine a disease by any other name would be as deadly; in law innocence or guilt often wait upon the name by which a thing is called. Insurance—a corporation practicing medicine—unlawful; a consumers' cooperative—legal questions vanish.

Then came certain moves against Group Health by the District of Columbia Medical Society. In respect to these the Government brought its indictment, charging violation of Section 3 of the Sherman Act, popularly known as the Antitrust Act. The counts against the Society, the American Medical Association, and their officials were three in number. The first was interference with physicians—both those who were in the employ of Group Health and those who might in future be so employed—in "the lawful pursuit of their calling." The second was interference with Group Health in an experiment intended to bring service within the financial means of the common people. The third was the denial to the public at large of whatever benefits might emerge from the provision of a more economical medical service.

All of this was a verbal cloak for a recitation of particular acts alleged by the Government to lie beyond the tolerance of the law. A physician was required to resign his position with Group Health as the price of retaining membership in the Medical Society. Another who persisted in staying with Group Health was expelled from the Society. A threat of "discipline" was made against any member of the Society who permitted himself to be called into consultation by any member of the staff of Group Health. Steps were taken to have the hospitals in the District of Columbia deny "courtesy" privileges to the members of the staff of Group Health. In a word, the Government charged a boycott against Group Health, the physicians in its employ, physicians who took counsel with them, and hospitals which extended their facilities to them.

Such, in the broadest terms, are the counts. To any indictment, the defendants can enter one or another of two pleas. They may admit or deny their guilt; if they deny, the case goes to trial, and the burden of proof is upon the party who alleges illegal conduct. Or they may insist that the statute under which they are hailed into

court does not prohibit the specific conduct with which they are charged. In technical terms, they may answer or they may demur; or, in popular language, their choice is to say it-ain't-so or to ask what-of-it.

When, at a preliminary hearing, the defendants appeared before Judge Proctor, it was to ask what-of-it. Their demurrer took three lines. First, Group Health was illegal; for a corporation, which had no sanction to do so, was illegally practicing medicine and selling insurance; and surely there was no wrong in interfering with an illegal concern. Second, the indictment was faulty. It was so colorful and so detailed as to prejudice the jury against the individual whom *it sought to convict.*†

Third—the one which was pressed the hardest—physicians are not subject to the prohibitions of the Sherman Act. For the law forbids restraint of trade; and, since medicine is not a trade, practitioners of medicine cannot possibly engage in restraint of trade.* Judge Proctor sustained the demurrer and the Government took an appeal to the Circuit Court of Appeals.‡

As the appeal was taken, it was the law and not the defendants, who went on trial. At this stage there was no question of guilt or innocence; the issue was the abstract one of whether physicians could be brought into court for violation of the antitrust acts. No more, no less, was under consideration than what the law is, and whether it applied to the kind of situation recited in the indictment.

The government's contention was that whether medicine is a trade or a profession had nothing to do with the case.** It was perfectly willing to concede that medicine is a profession, a noble profession, a learned profession. But it insisted that no question concerning the practice of medicine by a physician was at issue. Instead the concern was wholly with the economic arrangements, under which medicine is made available to the people. The doctor can meet his patient under any one of an almost infinite number of arrangements. Therefore, the heart of the case was the economies of medicine, not medicine as a profession.

The appeal presented a question of strategy; the issue might turn upon the line of attack. It was possible to exalt the common health, insist that current service was inadequate, play up Group Health as a great forward movement.† Or it was possible to ground the argument in the ancient precedents of the common law. In the end the more legalistic attitude prevailed; the dust was blown off of all the old books; rules, principles, citations were sought which, carrying across decades and even centuries, could do doughty duty in a modern bout at law.

So it was contended that there was here no issue over medicine and "trade." Rather the question was whether certain individuals, who happened in the instance to be physicians, had been guilty of the offense known at law as "restraint of trade." If you will write the term not as restraint of trade, but as restraint-of-trade, you will have a key to the line of argument. You cannot look up the word "restraint" and the word "trade" in the dictionary, and by putting them together find what the term means. You might just as well, by looking up the separate words try to determine what "last clear chance" or "due process of law"' means. In other words, "restraint of trade" is a term of art. As such it has little by little accumulated its meaning over a period of years. Therefore, the meaning of the term is to be discovered in the history of the law.

The question is the meaning of the term as set down in the Sherman Act under which the indictment was brought. This statute which was passed by the Fifty-first Congress and became a law on the 2d of July, 1891, has had an extremely interesting history. The original bill, introduced by Senator Sherman, was a thrust at the trusts, just then becoming big and powerful. It was aimed at persons who sought to lessen competition or to enhance the price of goods to the consumer. As it was debated it was amended,

†At the close of the trial, the attorneys for the defendant insisted that the jury should not take a copy of the indictment with them when they retired to make up their verdict.

*This did not stop the same attorneys from analogyzing the medical society to an association of working men, and claiming for the A.M.A. all the immunities which the courts have accorded to the trade union.

‡Had the demurrer been overruled the case would at once have gone to trial. At this point, the plaintiff has an appeal, but not the defendant. The reason for the difference is common sense. If the case goes against the defendants, they can argue their demurrer along with their conviction; so no rights are lost. But, unless the government can appeal at this point, its case can never be brought to trial.

**Just to get the record straight, a personal confession is in order here. At this point I entered the case in a minor role and wrote about half of the government's brief on the appeal. Again, to keep the record straight, I took no subsequent part in the proceedings.

‡It is of note in passing that the appeal was to be argued before a bench of three chosen from a court of six judges. Since these differed in attitude, experience, legal specialty, the world that moves beneath the hat, it might make a difference just who was to sit. Since this was not to be known in advance, lawyers on both sides were in something of a quandary as to just what to plead. The government, for instance, might have plead the "liberal cause" of seeking to promote the common health. Instead, it took a conservative stand and bottomed its case on the common law.

and as amendment after amendment was added, it lost alike its objective and its integrity. Eventually, as a thing of shreds and patches, it was referred to the Judiciary Committee. Despairing of straightening out the tortuous lines, the Committee scrapped the bill and with Senator Hoar as draftsman, rewrote the statute. It defined no new offense. It simply put a ban upon all conduct known to the common law as "restraint of trade."

It is always a task to discover the range and meaning of a statute whose lines are as lean as the Sherman Act. In this instance the history of the measure points the way. The bill which was debated was never passed; the bill which was passed was little debated. The quest for content runs away from the Congressional Record to the annals of the courts. There it is discovered that the reports abound in cases of restraint of trade. And, strange as it may seem to the laymen, there are more of these which concern medicine than any other calling. In fact an appendix to the Government's brief lists more than one hundred cases in which courts had applied to the medical profession the doctrine of restraint of trade.

It comes up in this particular way. A doctor sells his practice to another physician. He agrees for a certain period of time and within a certain territory not again to engage in practice. After a time the itch of the calling comes upon him, and he can remain idle no longer. Sooner or later, the old shingle is hung out again, whereupon the doctor to whom he has sold his practice brings suit against him for breach of contract. When it goes into the court, the doctor who rues his bargain pleads, "Yes, I have broken my contract, but the contract is illegal." For what reason is it illegal? "It is illegal because it is in restraint of trade and therefore void as against public policy." Sometimes the court finds for the plaintiff and awards damages; sometimes it finds the defendant and dismisses the suit. But, in every instance, the norm of reference is the prohibition against restraint. In fact, so far as the cases go, the doctrine of restraint of trade is better established in respect to medicine than any other occupation. The criminal penalty in the Sherman Act is new but the offense is old. The sole novelty is in making a misdemeanor out of what had long been recognized as a common law wrong.

The Government's argument was to the effect that the Sherman Act is general; that restraint of trade is an offense of which any person, corporate or natural, may be guilty; that its domain is universal. True, there can be an exception, but the exception must be decreed by the legislature which has passed the act. And every exception must be explicit, for adequate cause, by proper grant. Exceptions to the general law cannot be based upon inference or implication.

To the Sherman Act a number of exceptions have been written. They fall roughly into two general classes. The first are in respect to certain services where the consumer cannot best be served by competition. The public utility companies are the best example. But in such cases the state itself sets up a regulatory commission as substitute for competition. The second presents an attempt of the state to favor the weaker party to the bargaining process. The best example is in connection with labor. Statutes of the United States encourage working men to bargain with their employers as a unit. The theory is that such unity of action is necessary to encourage "that equality of bargaining power in which freedom of contract begins." A like exception has been written in favor of farmers' cooperative in the Capper-Volstead and the Agricultural Marketing Acts. But lest indulgence be pushed too far, those statutes provide that if the Secretary of Agriculture has reason to believe that the exception in any way tends towards monopoly, he shall take appropriate steps to hold it within lawful bounds. In all such instances the attempt is to lift the weaker party to an equality in bargaining power; but the moment a favored group rises above that plane, it transgresses the law.

So the question occurs, is there any exception on which the officials of the medical association can rely? It must, mind you, be explicit and by special legislative grant. Take first the American Medical Association, a corporation of the State of Illinois. It was chartered under the corporation act of a particular state, and it was not given a special charter. The instrument under which it operates is simply one of hundreds issued under a general enabling act. It contains no saving clause in favor of the medical profession. Nor, if there were, would it be of any value; for a state of the union can grant no immunity to a Federal act.

The Medical Society of the District of Columbia is, however, upon somewhat firmer footing.

Its character came by way of a special act of Congress, the very body which passed the Sherman law. If, therefore, a saving clause can be discovered within the four corners of the charter, it is possible to plead an immunity. The original grant dates from 1819; as the preamble declares the grant was made for the purpose of "promoting and disseminating medical and surgical knowledge and for no other purpose whatsoever." A section of the charter expressly provides that "nothing herein contained shall authorize the said corporation in anywise to regulate the practice of medical or chirurgical attendance upon such persons as may need those services nor to establish or fix a tariff of charges." The grant gives to the Medical Society the right to license physicians. That power was later taken away by an Act of Congress.

In 1924 Congress amended the charter of the Medical Society. Again the purpose was limited to promoting and disseminating medical knowledge; again was added the words "and for no other purpose." No prohibition covering the regulation of fees was deemed necessary, presumably because Section 3 of the Sherman Act covered the matter.† The discussion on the floor indicates that Congress desired to limit the activities of the Society to its avowed objects. Nowhere is it written that the Society may concern itself with the economic aspects of medicine.

A collateral chapter of history moves to the same result. In the sixteenth century, when the common law was in the making, the English government operated to a large extent through corporations of its own creation. All sorts of public functions were delegated to the half-private, half-public body known as "the honorable company." One of those charters—a most interesting document—was issued to the College of Physicians of the City of London. It gives to that body the right to license all physicians. It gives to it the right of "search and seizure" in respect to all medicines and medicinal products which come to market. The College had its own court policed a public domain, imposed its own sentences, even sent transgressors to jail. There was, in a word, an autonomous control of the medical profession by the College of Physicians. As the use of private agencies to do public work fell away, the "liberties" of the College were later restricted. A copy of this old document seems to have been before Congress in 1819; for a number of paragraphs in the charter of the Medical Society of the District of Columbia are identical in language with its provisions. It is, therefore, significant, that all powers of police, and all authority in respect to the economics of medicine are omitted from the District Society's Charter.

In days of old the law undoubtedly recognized immunities in respect to the learned professions. At the close of the Middle Ages the affairs of the church were rather generally beyond the reach of the secular law. But in recent centuries the legal trend has been towards a general law which treats all alike. As against class or calling no principle is today better established than "equality before the law." So the Government concluded its argument with the statement that the law did not spend centuries, first to abate and then to abolish benefit of clergy, to confer its immunity upon the more secular calling of physician.

The appeal of the Government was successful. The Circuit Court reversed Judge Proctor and overruled the demurrer. A petition by the defendants to the United States Supreme Court was denied. So, after much-to-do over the law, the suit eventually went to trial before Judge Proctor. In this ordeal the Government put forward two distinct lines of testimony. The first was a series of documents gathered from the files of the accused. In accord with its usual procedure, the Government secured from the court and served upon the District Society a subpoena duces tecum—"you come into court and bring with you." You might almost add to that "Cum filing case." In other words, "Bring all of your records." It was as if the Government had said, "These charges must be tried by the facts; we haven't the facts but you have; bring them into court."

If I may be permitted to say so, the officials of the Society had behaved like amateurs, not like hardened criminals, at the game of restraint. They put things in writing which no baron of big business would ever allow to escape the secrecy of private conversation. An example or two will make the matter clear. A resolution begins, "Whereas the Medical Society of the District of Columbia has an apparent means of hindering the successful operation of Group Health

†In the original debate, leading to the Sherman Act, Senator Morgan had asked if medicine were not included within the proposed measure. Senator Sherman did not know. The Government in the instant case plead "the silence of Congress" against any exception.

Association." A statement by an official of the Society urges indirect attack, insisting that whatever plan is used, it must be "camouflaged to the nth degree." It is easy to multiply instances of such indiscreet statements.

Second, the Government introduced evidence of overt acts on the part of the defendants. As is the habit of lawyers, the attorneys for the government tried to make their exhibits as dramatic as possible. They presented instances of individuals taken to hospitals in the dead of night in demand of immediate surgical attention. As usual, it was the zero hour, the cold winds blew; snow lay upon the ground. In such circumstances the patient was turned away, the Group Health surgeon was denied the right to operate, and in one instance a junior member of the regular staff was alleged to have run by all the red lights and to have performed an unnecessary operation. There was material for an exciting show and the lawyers for the government did not stint its use.

Attorneys for the two sides "summed up," each giving an impartial history of the case from his own point of view. Each side prepared proposed instruction to the jury and passed them along to the judge. The judge accepted the majority of the instructions presented by the defense but turned several down. In these instances the defense took exception as the basis for an appeal. As with the defense so the instructions prepared by the plaintiff were accepted or rejected at the pleasure of the court. In addition the judge delivered a number of instructions of his own and sent the case to the jury. The jury deliberated a few hours and you know the result. The list was called: "American Medical Association"—"Guilty." "Medical Society of District of Columbia"—"Guilty." The American Medical Association and the District Society had violated the Sherman Act but no official or member connected with either had engaged in restraint of trade. The two corporations had acted but without the intervention of any human agency whatsoever. The verdict has led to the judgment being known around the Department of Justice as the Case of the Immaculate Conception.

Yet such a result is not surprising. The judge instructed the jury to weigh the whole of this evidence in respect to each one of the defendants. Note the intellectual problem with which each of the good men was confronted. Let us list every act that is done along the left of a page; let us list the name of the several defendants across the top of the page. Then down the columns a checkmark is made every time a specific act is proved against a particular defendant. You can see the intricate problem in imputation which is presented. And since twelve true men are sitting and the judgment must be unanimous, the checkmarks must go down in the same places.

The Association and the Society has taken an appeal to the Circuit Court. If they lose there, they will probably appeal to the United States Supreme Court. As to success, these can at this time be only an opinion; and in speculation upon what courts will do, doctors are every bit as good as lawyers. The best chance for the defense would seem to be to set their argument in reverse, insist that physicians are tradesmen, and claim whatever immunities have been accorded to trade unions. The Norris-LaGuardia Act, with its cloak of protection for "collective activities," is a possible refuge, and the recent decision in U. S. v. *Hutchinson* might prove a sanctuary if physicians can prove to the court that they belong under an umbrella erected for the carpenters' union. But, since benefit of clergy has gone, it is hard to see where else they can find an immmnity for the profession.* After all these years the case is still unfinished business—and we shall see what we shall see.

In conclusion, may I append two or three personal comments. First, nobody is called upon to like Group Health. Physicians are free to talk about it, write about it, damn it just as much as they please. But when they combine to dictate to hospitals that members shall not be put upon their staffs whose sole offense is active participation in a new form of medical organization, that is going a little bit too far. Persuasion is one thing, a concerted boycott something else again. Nor is it quite persuasion to ask for immunity for doctors in respect to conduct that would not be tolerated on the part of big businessmen.

Second, it seems to me almost mediaeval to get a question of this kind settled by resort to the courts. Surely some reference ought to be found a little more modern than a norm of restraint of trade whose meaning was fixed in the law at

*One, at least in a footnote, may be permitted to remark that it hardly seems consistent to argue (1) that medicine is not a trade, and (2) that a medical society is entitled to the legal immunity of a trade union.

least as early as 1621. Nor does an interminable legal process, in which a case shuttled around the courts for years, appear an ideal way of deciding how far an organized group of physicians may go in giving effect to their views.

Third, the distinctive character of the physician's service should have greater recognition than has been accorded it here. It is not like things which are bought and sold; it is not even like other services. Any one of you can draw up a catalogue of differences; a couple of items is enough to drive home the point. One is that the practice of medicine is essentially a public—even if not a governmental—office. In your dealings with us a doctor is not a stranger that we meet and bargain with at arm's length. We as laymen have little capacity to judge the quality of your work. In the very nature of things you hold an office in trust; you must protect our interests as well as your own. Two, medical services cannot be marketed as are ordinary goods. There is no unit of weight, length, time, by which a doctor's work for us can be measured. An hour with an expert diagnostician is worth a hundred hours with a routine practitioner. Medicine is an art; the mark of art is quality; quality cannot be measured. In a word, in appraising medicine, the techniques of the market are out.

Finally, the question of the economic arrangements under which medicine is to be practiced is insistent. In the instant case the Government took the position that as between "private practice" and group health it played no favorites; that its demand was only for a fair field and no favors. And to the same effect the judge charged the jury. But neither physicians nor the great laity they serve can afford so Olympian an attitude. The private practice of old has, whether you like it or not, been modified beyond recognition New economic arrangements have appeared under which people have access to the facilities of health. Of change there is no better evidence than that Group Health could not carry on without access to hospitals and to specialists with whom they could consult. Change has come, yet it has been little directed. The old is departing; yet there is no new order to replace it.

The plain truth is that the economic organization in medicine is backward compared to its technology. Private practice is no longer adequate to the needs of the nation; and I agree with you that medicine lends itself more clumsily than almost any other service to a regimented system under state control. Somewhere in between the answer lies; as the economics of medicine is brought up to date, invention must get in its work. The professional independence of the physician must be retained; yet his work must be set within arrangements which bring the requisites of well-being to the great mass of the American people at prices they can afford to pay. If I may restore to currency an old term, the task is, amid the modern condition of life, to devise ways and means by which the doctor becomes again the great personal instrument of "the common health."

Yale University.

AMERICA AT WAR

DECONTAMINATION OF EYES AFTER EXPOSURE TO LEWISITE

Reference is made to a news release under date of March 31, 1942, regarding the treatment of Lewisite burns of the eyes with hydrogen peroxide. Further carefully controlled work conducted by the National Research Council indicates that hydrogen peroxide is entirely ineffective for treatment. Washing with large amounts of 2 per cent solution of sodium bicarbonate in water or with plain water is the most effective treatment, and should be carried out as soon as possible after exposure.

Three important agencies—the Federal Security Agency, the Office of Civilian Defense, and the American Red Cross—have agreed upon plans to assist civilian victims of enemy action, in case of bombing.

Immediate responsibility for the care of persons injured as a result of enemy action is placed upon the Emergency Medical Service of the U. S. Citizens' Defense Corps. The Red Cross will assist in furnishing nurses' aides, stretcher teams, ambulances, and supplementary equipment; it will not duplicate the work of the Emergency Medical Service.

Because of the long experience of the Red Cross in disaster relief, the joint statement of the Red Cross and the Federal Security Agency states that the Federal Security Administrator will look to the organization, facilities, and resources of the Red Cross to provide food, clothing, and temporary shelter for masses of individuals in the emergency period during and immediately following enemy attack when special facilities must be made available.

The Red Cross will continue these special functions only until the regular Federal, State, and local public agencies which have the normal responsibility for meeting the needs of dependent persons can make their services available after the emergency. The Red Cross will provide additional services to the appropriate public authorities, upon their request, to supplement normal community facilities.

The joint statement of the Red Cross and the Office of Civilian Defense makes it clear that emergency feeding and housing, though similarly recognized as a responsibiltiy of the Red Cross, is a function of the over-all emergency services of the Citizens' Defense Corps. This service thus operates under the control of the Commander of the Defense Corps in accordance with detailed plans to be worked out jointly by the Commander, the Red Cross Chapter, and local public welfare agencies, much as the Red Cross operates as an auxiliary of the Army on the field of battle. At the same time, it is agreed that where an emergency food and housing corps has already been

independently organized and equipped, no duplication of its facilities should take place; its organization should be coordinated with the Red Cross and if possible consolidated.

The two joint statements provide the means through which the work of the Government dovetails with the work of agencies voluntarily supported by the public. The 3734 Red Cross Chapters can now work on a common understanding with local defense councils and public welfare and health agencies in every county in the United States—for the safety and welfare of the American people.

JOINT STATEMENT OFFICE OF CIVILIAN DEFENSE AND AMERICAN RED CROSS

To secure unity of effort and avoid duplication of facilities in meeting civilian needs arising from enemy action, this statement is issued by the Office of Civilian Defense and the American National Red Cross for the guidance of Defense Councils and Red Cross Chapters.

It is the responsibility of local Defense Councils to see that adequate provision is made for all services required in the event of bombing or other enemy attack. During an emergency period the Commander of the Citizens' Defense Corps will exercise control over all such services.

With respect to emergency medical services and emergency feeding, housing, and clothing, provision should be made in each community in conformity with the following principles:

Emergency Medical Services

During bombing or other enemy attack, all services are directed from the Control Center in charge of the Commander of the Citizens' Defense Corps. Responsibility for the care of those injured as a result of enemy action rests with the Emergency Medical Service of the Citizens' Defense Corps under the directon of the Chief of the Emergency Medical Service.

Red Cross Chapters assist the Emergency Medical Service by (a) recruiting and training Volunteer Nurses' Aides who will be utilized by the Emergency Medical Service at Base and Casualty Hospitals, Casualty Stations, and First Aid Posts; (b) furnishing lists of persons trained in first aid to be enlisted by the Emergency Medical Service as members of its stretcher teams; (c) providing dressings, bandages, and supplementary equipment as the Chapter may decide in consultation with the Chief of Emergency Medical Service; (d) equipping and operating emergency ambulances to be assigned to the Emergency Medical Service and to serve under its direction; (e) providing supplementary transportation for walking injured and for Emergency Medical Service personnel. During the emergency period, ambulances and motor units assigned to such transportation service will be under the direction of the Chief of Emergency Medical Service or the Transport Officer. The Emergency Medical Service of the Office of Civilian Defense will not be duplicated by the Red Cross but will be utilized by the Red Cross in natural disasters.

Emergency Feeding, Housing and Clothing

In the joint statement dated April 17, 1942 of the Office of Defense Health and Welfare Services and the American Red Cross it is agreed: "With respect to the emergency period during which special facilities must be made available to meet emergency needs without notice, the Federal Security Administrator will look to the organizations, facilities and resources of the American Red Cross to provide food, clothing and temporary shelter." These services will be provided locally during an emergency period by the Red Cross under the control of the Commander of the Citizens' Defense Corps in accordance with detailed plans to be worked out jointly by the Commander, the Red Cross Chapter, and the public welfare authority.

Defense Councils should avoid duplication of these facilities. Where an Emergency Food and Housing Corps has already been organized and equipped to the satisfaction of the Commander of the Citizens' Defense Corps, its function should be coordinated with those of the public welfare authorities and the Red Cross Chapter and if possible consolidated.

After the emergency period the appropriate public agencies are expected to undertake the care of civilians in accordance with plans developed in conjunction with the Office of Defense Health and Welfare Services and the Federal Security Administrator. Funds will be made available for this purpose by the Federal Government through the Federal Security Administrator. Local welfare agencies and Red Cross Chapters should be guided in their relationship by the agreement signed on April 17, 1942 by the Office of Defense Health and Welfare Service and the American Red Cross.

All Red Cross volunteers enlisted in the emergency feeding and housing service, and all other Red Cross volunteers who are to be in service during and following bombing or other enemy action, will register with the local Civilian Defense Volunteer Office. The cards of all such registrants are to be marked so as to show

that those volunteers are in Red Cross service. In order to obtain necessary freedom of movement during, and immediately after enemy action, Red Cross personnel certified to the Commander by the chapter for emergency feeding, housing, and clothing services will be furnished with identification cards issued to Citizens' Defense Corps personnel, and will be authorized to wear the official armband.

This statement supersedes the joint statements of September 4 and December 22, 1941.

James M. Landis, Director
Office of Civilian Defense.

Approved:
Norman H. Davis, Chairman,
American Red Cross.

JOINT STATEMENT OF THE OFFICE OF DEFENSE HEALTH AND WELFARE SERVICES AND THE AMERICAN RED CROSS CONCERNING DISASTER, RELIEF AND CIVILIAN WAR AID

The purpose of this joint statement is to present a plan which is clearcut and readily understood, locally as well as nationally, for the distribution of functions pertaining to Disaster Relief and Civilian War Aid. This plan avoids the creation of unnecessary machinery, preserves the values inherent in retaining established agencies — public and private — without impairment of their normal functioning, is susceptible of application in all jurisdictions, and is effective without change in principle, or method, in major or minor emergencies. It recognizes the basic responsibility of government for Civilian War Aid and of the American Red Cross for Disaster Relief.

Background

On September 4, 1941, a general understanding was reached between the American Red Cross and the Office of Civilian Defense which stated in part that since "the Red Cross is the responsible agency for the relief of suffering caused by disaster, both in peace time and in the National Defense Emergency, by providing food, clothing, shelter, medical and nursing care, and other basic necessities", it should serve in the "emergeney care and rehabilitation of individuals and families suffering from disaster caused by enemy action".

On February 4, 1942, an understanding was reached between the Office of Civilian Defense and the Office of Defense Health and Welfare Services covering the relationships between those two offices. The substance of that statement is that, while the OCD coordinates the work of the Federal Departments relating to civilian defense and promotes the development of state and local Defense Councils and programs, the ODHWS is the agency through which the OCD works with respect to all activities of Federal and national agencies in the field of health, welfare, education, nutrition, recreation, and related services.

On February 6, 1942, the President authorized the Federal Security Administration to provide such aid to the civilian population as may be necessitated by enemy action.

Definitions

In the interest of clarity, the term "disaster" will not be used in connection with emergencies created by enemy action. Through long usage the term "Disaster" has come to have special significance as referring to natural and accident-caused situations, usually catastrophic in nature, such as hurricanes, tornadoes, and other destructive windstorms; floods; fires; explosions; and epidemics. The term "disaster" has a peculiar connotation which makes its use ill-advised in connection with emergencies resulting from enemy action. Therefore, the word "disaster" will be used to refer only to natural and accident-caused situations, whereas the term "civilian war aid" will be used to describe the relief aspects of situations created by enemy action. The hazards which may involve aid to civilians affected by war operations include civilian needs resulting from enemy attack or the danger thereof or from action to meet such attack or danger and the removal of civilians because of military necessity.

Needs

The human needs for Civilian War Aid arising out of an emergency created by enemy action are in general the same as those arising out of disaster.

These needs may be dealt with in three stages: (1) on a mass basis immediately following the emergency; (2) on a temporary individual basis following the restoration of normal community facilities; and (3) on a long-time basis through indemnity or other benefits.

The need for services will be most pronounced immediately following the emergency before the community facilities begin to operate normally,

or in communities which are so devastated that money will not meet the need for necessary goods and services through ordinary channels. Such services include: inquiry and information service; first aid and emergency medical service; more extended medical, nursing and hospital care; transportation of persons and their necessary belongings, and appropriate services en route; food and mass feeding; clothing; shelter, temporary and long-time; household furnishings, workmen's tools, and stock-in-trade of shopkeepers; occupational aid; and aid to families returning to their original homes or being resettled in new locations.

Where the normal facilities of the community are not so seriously disrupted by the enemy action that persons with money cannot procure the necessary goods and services, the Federal Security Administrator will make temporary aid available through the facilities of the Social Security Board and appropriate State and local public agencies which are now responsible for meeting the needs of individuals and families. On a long-time basis persons who are injured and dependents of persons who are injured or killed may receive continuing assistance in the form of indemnity benefits, in the nature of workman's compensation but not restricted to wage-earners, through the Social Security Board.

With regard to medical, nursing, and hospital care, the Federal Security Administrator has designated the U. S. Public Health Service and the cooperating State and local public health departments as the responsible agencies, utilizing funds made available to the Federal Security Administrator. The American Red Cross will supplement medical, nursing, and hospital care in accordance with such plans as may be developed between the U. S. Public Health Service and the American Red Cross, with the approval of ODHWS.

The Federal Security Administrator, working through the Social Security Board and appropriate State and local public agencies, will make provisions for the long-time maintenance of civilians affected by enemy action, the provision of household furnishings and of long-time or permanent shelter (including repair and rebuilding of homes), occupational assistance, and aid to families returning to their original homes or in need of permanent resettlement elsewhere.

Policies and Procedures

(1) The American Red Cross, under its Congressional Charter, is the responsible agency for extending relief in natural disasters and those caused by accident or sabotage, whether they occur in peacetime or in war-time. As in the past, the Red Cross in extending such relief will be supported and assisted by the appropriate governmental agencies and facilities.

(2) The Federal Government has basic responsibility for the protection, welfare, and care of the civilian population in emergencies resulting from enemy action. In view of the President's allocation to the Federal Security Administrator on February 6, 1942, and pending legislation to make such functions more permanent, it is assumed that necessary funds will continue to be available to provide for all needs of civilians affected by enemy action.

(3) With respect to the emergency period during which special facilities must be made available to meet emergency needs without notice, the Federal Security Administrator will look to the organization, facilities, and resources of the American Red Cross to provide food, clothing, and temporary shelter. As soon after the emergency as the Federal Security Administrator determines that aid can be extended through normal channels, he will carry out his function through the regular Federal, State and local public agencies which are now responsible for meeting the needs of dependent individuals and families, and the Red Cross will arrange for the orderly termination of its emergency aid.

(4) With regard to food, clothing, and temporary shelter, the American Red Cross will use its organization, facilities, and resources, in conformity with this joint statement and such additional detailed plans as may be developed by it and the Federal Security Administrator. The American Red Cross will function in every community on the basis of conditions agreed upon by it with the State and local Public Welfare Agencies in conformity with this joint statement and with such additional detailed instructions as may be agreed upon by the Federal Security Administrator and the American Red Cross. In addition to providing food, clothing, and temporary shelter, the American Red Cross will, where appropriate, provide inquiry and information service and assist in the transportation of persons, and their necessary belongings, in connection with Civilian War Aid.

(5) The American Red Cross is prepared to undertake appropriate added responsibilities for sufferers from war-caused emergencies and will provide assistance and services supplemental to those made available by public agencies in those cases which are referred to it by the public agencies for consideration of special needs and services.

(6) Should enemy action cause needs for food, clothing, and temporary shelter of such magnitude as to be beyond the normal scope of voluntary financing, or should the Federal Security Administrator even in situations within the normal scope of voluntary financing prefer to discharge the Government's basic responsibility by financing these needs, the Federal Security Agency will make payment for the major expendable items, after the fact and upon presentation by the American Red Cross of properly certified vouchers. In all activities which the American Red Cross undertakes, detailed accounting will be maintained in accordance with existing procedures so that adequate vouchers, properly audited by the War Department, may be presented.

(7) Since the operating details of Civilian War Aid will vary in the communities according to existing facilities and practices, the State and local agencies designated by the Federal Security Administrator will work out the details of local operations with chapters of the American Red Cross. At each level, the government has basic responsibility for meeting the needs and the American Red Cross will work out the details with the responsible state and local public authorities in the same way that it has worked out the national policies and procedures with the Federal Security Administrator in order that the local operations will conform to the general principles and procedures stated herein.

(8) The American Red Cross National Organization will arrange immediately for compliance with the provisions of this joint statement by its local chapters. Similarly, the Federal Security Administrator will use all reasonable means to secure compliance by State and local governmental authorities.

Approved:

PAUL V. McNUTT, Director
Office of Defense Health and Welfare Services

NORMAN H. DAVIS, Chairman,
American Red Cross.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

SOUTHWESTERN MEDICAL ASSOCIATION

(Louis W. Breck, M. D., Associate Editor)

The associate editor was fortunate enough to attend the Arizona State Medical Association's Meeting held in Prescott and there contacted the President of the Southwestern Medical Association, Dr. C. A. Thomas of Tucson, and many of the other men in Arizona, who are highly interested in the Southwestern Medical Association. It seems the concensus that no meeting be held this year and all members of the Executive Committee have cast their vote against meeting this fall. The members of the Executive Committee from New Mexico and El Paso were definitely opposed to the Meeting, as were those from Arizona. It was felt that a poor attendance would be much worse than none at all. With so many men in the army it would be very difficult for those at home to leave town for a medical meeting, and all in all seemed quite impractical. The Executive Committee hopes this meets with the approval of the membership of the Southwestern Medical Association.

The news about the meeting is the principal

news item, and except for many members going to the armed forces, there is little more to report. We were pleased to note that in the report of Paul V. McNutt on what states had contributed their share of doctors, both Arizona and New Mexico were mentioned, and while Texas was not mentioned in this group it was not mentioned in the list which had not contributed their share. We are proud that during this national emergency the doctors of the southwest are doing their part.

LOUIS W. BRECK, M. D.
Secretary.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

At the meeting of the City-County Hospital Staff, Wednesday, June 17, 1942, the program was:

Case of peritonitis of unusual origin—Dr. Erich Spier.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

AUXILIARY NEWS

PRESIDENT'S MESSAGE

After attending the Arizona State Medical Convention in Prescott May 25th to 30th and enjoying the gracious hospitality of the beautiful mountain city, I felt greatly encouraged by the interest shown in the work of the Woman's Auxiliary. We realize during this time of strife and peril in the world at large, that our task is not an easy one.

Our membership is being depleted by the call to military service of many of our doctors. This not only disrupts our home life but disturbs our interests in local welfare.

However, as wives of doctors we will continue to carry on the furtherance of the policies of our National Organization, such as:

Defense war work in its many branches.

Nutrition for home and community.

The vital cancer control through educational endeavor.

Furthering the distribution of HYGEIA, the health magazine which is full of vital health suggestions for our youth and adults as well.

To assist in any legislation measures when our Council advises.

To be of service to our local organizations when called upon to take part in any health problems which might arise.

To establish interest in the study of the Bulletin of the Woman's Auxiliary to the American Medical Association.

And, in general, to broadcast that "an ounce of prevention is worth a pound of cure" when it comes to keeping our bodies and minds in a fit condition to meet and cope with any emergency that might occur.

Landonia C. (Mrs. H. P.) Mills
State President,
Woman's Auxiliary to the
Arizona State Medical Association.

REPORT OF PRESCOTT MEETING

The twelfth annual convention of the Woman's Auxiliary to the Arizona Medical Society was held in Prescott, Arizona, May 28th and 29th. While the attendance was a great deal smaller than at previous state conventions, due mostly to war conditions, a worth-while program was put on and a delightful time was enjoyed by all. Yavapai County Auxiliary spared no efforts in seeing that this was done.

The members met for an informal roundup Wednesday evening, May 25th, at the Hassayampa Hotel. Thursday at 10 A. M., the program opened with the invocation by Rev. Howard Hayes. After an address of welcome by Mrs. James H. Allen, President of Yavapai County Medical Auxiliary, and the response by Mrs. V. G. Presson of Tucson, the regular routine business session followed—reports of state officers, county presidents and committee chairmen.

An attractive exhibit from Arizona was sent to the National Convention at Atlantic City this year. Being so large it was impracticable to show same at Prescott. The exhibit was a combination of pictures mounted on a blue background and framed. The pictures were of a sanatorium, a crippled children's home, a preventorium, a hospital, et cetera, that the different county auxiliaries had aided financially during the past year.

Mrs. E. Payne Palmer of Phoenix was elected

delegate to the national convention at Atlantic City.

After the business session Dr. Henry S. Rogers, President of California State Medical Association, gave a talk on "Responsibility of the Medical Profession and the Woman's Auxiliary in the Present Crisis."

At 1 P. M. Thursday a luncheon was given at the Congregational Church, after which the members enjoyed a tour through the Veterans' Hospital at Whipple Barracks and a tea at the home of Mrs. John E. Fahey, Whipple Barracks. In the evening the doctors joined the women at a dinner dance at the Hassayampa Hotel.

Friday, May 29th, after a short business session the members listened to Dr. Hilda Kroeger of Phoenix give an interesting talk on the Japanese Concentration Camp near Prescott which she had just visited. The new officers for the coming year were next installed and the new president, Mrs. Harlan P. Mills, took over the office of president. Another delightful luncheon was served to the members at the Hassayampa Country Club at 1 P. M.

Mrs. B. B. Edwards.

TWENTIETH ANNUAL CONVENTION WOMEN'S AUXILIARY

The 20th annual convention of the Women's Auxiliary to the American Medical Association was held at Haddon Hall, Atlantic City, New Jersey, June 8-12, 1942.

In spite of chaotic world conditions the meeting was a very large and successful one. The excellence of convention facilities, the beauty of natural setting, of color and architecture, and the pungent, salt-air breath of the deep sea, make Atlantic City the greatest convention city in the world.

Pre-convention meetings were held on Sunday, when members of the hospitality committee welcomed members and guests of the W. A.

On Monday morning a meeting of the Board of Directors was presided over by the president, Mrs. R. E. Mosiman. A discussion as to whether the exhibits should be continued at the national A. M. A. conventions finally ended in a vote for the discontinuance of the exhibits at the national meetings but left to choice for state meetings.

On Monday afternoon, a most delightful tea was given in the Garden Room of Haddon Hall, honoring Mrs. R. E. Mosiman, president, and Mrs. Frank Haggard, president-elect, for members of the National Board of Directors and guests. The graciousness of the hostesses, especially in making all guests feel so completely at home, made it a memorable occasion.

Your Arizona delegate was welcomed most cordially by the president, who spoke most complimentary of her visit to Arizona. She lauded in particular the splendid work of Mrs. Jesse D. Hamer, who at that time was chairman of the legislative commission.

Tuesday morning marked the formal opening of the convention. Cordial greetings were extended by Dr. William J. Carrington. Various reports of officers and of chairmen of convention committees were read. Outstanding on this program was the inspiring address of the president, Mrs. R. E. Mosiman.

Following the formal opening, a luncheon honoring the past president of the W. A. to the A. M. A. was given. Dr. Frank H. Lahey, president of the A. M. A.; Dr. W. W. Bauer, director, bureau of health and education, and Mrs. Aug. S. Keeh, director of health education, gave very fine, as well as helpful, talks.

Tuesday evening marked the opening general meeting of the A. M. A. Great numbers of the W. A. were in attendance and were greatly impressed by the timely and well-delivered address of Dr. Fred W. Rankin, who had just been introduced and installed as president of the A. M. A. by Dr. Frank H. Lahey, retiring president.

At the session on Wednesday morning, the very fine inaugural address of the president-elect, Mrs. Frank Haggard, was the outstanding feature. Dr. Rankin and Dr. Morris Fishbein were the capable speakers at a luncheon following this session.

The annual dinner for members' husbands and guests was held on Thursday evening. As always, it was a gala affair with a large attendance. Dr. Raimundo de Castro of Havana, Cuba was the guest speaker. He had just returned from various war zones and had much of interest to relate and left a message to the W. A. which will inspire them on to better and greater work in National Defense. Dr. de Castro told of the heroism of the valiant women of the Philippines, who are even offering the supreme sacrifice with their husbands on the battlefields. In

Cuba, he said, the women were working side by side with their husbands in the hospitals. In forceful language, he made one realize the tremendous amount of good that the W. A. can accomplish and the valuable assistance it can give to the doctors in these critical times.

The 20th annual meeting came to a brilliant climax with the reception and ball for the retiring and new officers of the A. M. A. It was my good fortune on this occasion to have a nice long chat with the new president of the W. A.

Mrs. Haggard is a woman of charm with a winning personality. She spoke of a contemplated visit to Arizona in the near future, at which time she hopes to meet the members of the Arizona Women's Auxiliary. Her message to the Arizona W. A. was not to branch out along new lines but to continue along the old lines, stressing nutrition, public health relations legislation and the distribution of Hygeia. With these branches well taken care of throughout the country a great and needy work can be accomplished.

It was an honor indeed to represent the Arizona W. A. at the 20th annual convention. Your delegate is deeply grateful of the honor and was proud of the report submitted by your past president, Mrs. Edwards.

—Mrs. E. Payne Palmer.

COMMUNICATIONS

Sir:

I am sorry to tell you that in view of travel restrictions and the general war situation, we very reluctantly decided to call off the Seventh Harlow Brooks Memorial Navajo Clinic for this year.

Everyone seems to regret the necessity, but thinks it was the only thing to do.

We had a humdinger of a program lining up —Dr. Albee and Dr. Donnett from New York, Elmer Belt from Los Angeles, and just a swell bunch of other fellows. I finally got cold feet and decided I didn't want a high powered program with no audience.

Dr. Greer has been ordered to sea duty. Dr. Sechrist of Flagstaff is reporting for examination in a few days.

I appreciate your interest and I hope you can come to our Victory Session in 1943, after we have Adolph and Hirohito in the bag.

Very sincerely,

C. G. SALSBURY,
Medical Director,
Sage Memorial Hospital
Ganado, Arizona.

MISCELLANY

ON ALLERGY

There has been a good deal of confusion in recent years brought about by the inaccurate use of the word "allergy." Consequently, you hear the statement made frequently that "very few cases of hives are allergic," or that "many cases of asthma are not allergic," et cetera. What the speaker really means is that he cannot establish the fact that they are atopic. It is to be emphasized here that clinical allergy may be of several types: (1) atopy, or the familial type; (2) contact type; (3) bacterial type; (4) serum type; and (5) physical type. During the last two years leaders in this specialty have been pointing out that under this broader classification almost all cases of vasomotor rhinitis, bronchial asthma, hives, and eczema are allergic and fall into one of these classifications. They usually represent an abnormal response to what is ordinarily a harmless substance, and the reaction is characterized by the release of a chemical substance producing a local tissue dropsy through increased capillary permeability. This chemical substance, referred to by Lewis as "H-substance," is histamine or closely related material. Atopy is recognized as the common form and the one which most writers refer to when they use the term "allergy" in a too restricted sense. This atopy has a familial distribution. Whether it is inheritable is still an open question, but it certainly runs in families. It is accompanied by transferable antibodies, so that one can do passive transfer tests with the blood of its victims.

Likewise, we have come to appreciate that with infection there is an allergic factor. In fact, in most infections the symptoms which the patient manifests are dependent upon the degree of allergy present. It is the allergic attack that makes the patient sick. Certainly this is true of many infections other than tuberculo-

sis, and we now realize that bacteria may play three different roles in the presence of an allergic disease. The victim may be atopically allergic to the protein of the bacteria. The victim may be allergic in the tuberculin sense, and this is what is meant by the bacterial type of allergy. Finally, the infection may be complicating the allergy and, by lowering the general health of the victim, may be a precipitating factor in the production of the allergic manifestations.—*Jo. Ind. St. Med. Assoc.*

PNEUMONIA

At the present time, the drug of choice in the treatment of all pulmonary infections is sulfadiazine. This includes infections caused by the pneumococcus, the streptococcus, the staphylococcus and the Friedlander bacillus. This statement receives support from the fact that clinical experience and experiments on the relative efficiency of sulfanilamide, sulfapyridine, sulfathiazole and sulfadiazine indicate that sulfadiazine is less toxic and more effective than the others. Recent reports indicate that the death rate from pneumonia following the use of sulfadiazine is approximately 10 per cent for all ages. Under 50 years of age it is about 3 per cent. Higher fatality rates are encountered in patients over 50 years of age and in those with bacteremia. On the basis of experience in the treatment of pneumonia in civil practice it is suggested that the mortality from pneumonia among the armed forces during the present war should not exceed 2 to 3 per cent instead of 25 to 30 per cent in the last war.—*Ohio St. Med. Jo.*

SURGICAL MORTALITY

In the pioneer days of surgery, when an operation was viewed as a last resort, usually hopeless, the mortality rate was consequently so high that only the desperate patient would submit to the knife. The general attitude of the public contributed to the high mortality. The surgeon was not thought justified, for example, in removing an ovarian tumor until it go so large that the patient's family, neighbors and friends could see that unless it was removed the patient would die. The delay, of course, made the risk of the operation greater. As the years have brought us more diagnostic and treatment aids, and as the public has come to look upon surgery as a friend in need instead of a last resort, just so have mortality rates progressively fallen. Before we can become too complacent about our success, however, we still have much to do in order to lower further the mortality rate in surgery, especially in the poor-risk patients whose cases were formerly considered hopeless. During the past few years a gratifying measure of successful surgery on poor-risk cases has given the profession the satisfaction that much is being done, and that in the future still more will be achieved towards our goal. Our first realization must be that in spite of every precaution that can be taken we shall always have the poor risk with us, especially now with the stepped-up tempo of the times. The press and radio are constantly reminding us that we shall have extra burdens and duties as a result of the war; hence, it behooves us of the medical profession to be on our toes, so that we shall be prepared to handle anything and everything that comes to us, in order that there will be no Pearl Harbor incident in the medical ranks.

In this paper we shall consider first the causes contributing to the poor surgical risk, then dwell briefly on various methods of treatment, mentioning in passing those aids in diagnosis and treatment that are making it possible for us to lower the mortality rate.—*Jo. Ind. St. Med. Assoc.*

OSTEOPATHIC AMENDMENT DEFEATED

A proposal to make osteopaths eligible for commissions in the Medical Corps of the United States Army was rejected by the House of Reprentatives during consideration of S. 2025, which readjusted the pay and allowances of personnel of the Army, Navy and Marine Corps, Coast Guard, Coast and Geodetic Surgery and Public Health Service. When this bill was considered on the floor of the House, Representative Costello, California, offered an amendment to the section of the bill pertaining to the appointment of commissioned officers in the Army, as follows: "Provided, That nothing in this section shall preclude the appointment of commissioned officers for service in the Medical Corps of the Army of the United States made in part from among graduates of reputable schools of osteopathy, who are licensed or eligible for license under state law to practice medicine, or oste-

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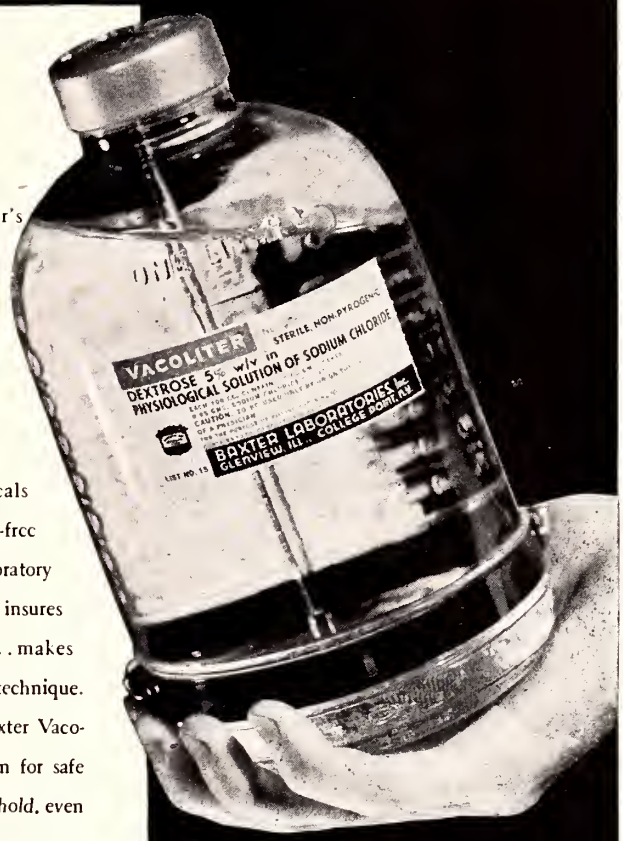

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opathy, as the case may be, and who are otherwise qualified under such regulations as the President may prescribe.'' The amendment was rejected.—*Ohio St. Med. Jo.*

PLASMA TRANSFUSIONS

Indications for plasma transfusions are as follows:

1. Shock—traumatic, chemical, thermal.
2. Shock—associated with acute coronary occlusion.
3. Shock—with hemorrhage.
4. Dehydration—from diarrhea.
5. Hemorrhage—(plasma may be given before blood is available).
6. Infection—general or local in which there is loss of protein through the kidneys and protein intake from food is not sufficient.
7. Burns—loss of protein and fluids by exudation.
8. Nephritis—with marked albuminuria without edema when the plasma protein is not maintained at a satisfactory level.
9. Nephritis—with edema with marked hypoproteinemia and albuminuria.
10. Nutritional edema.
11. Hypoproteinemia—due to an inadequate protein intake.
12. Liver damage.
13. To promote wound healing.
14. Increased intracranial pressure.
15. Some cases of pulmonary edema which are refractory to bleeding alone.

Contraindications are few:

1. Congestive heart failure unless bled first.
2. Dehydration approaching a critical level of 6% of body weight. This may not be a valid objection.

In the treatment of these various conditions, methods for determining the state of hemoconcentration are often of great value. The following methods may be used:

1. Specific gravity—falling drop method.
   A more rapid fall indicates diminishing blood density which may be interpreted as a shift of fluid into the peripheral vascular channels. Since the increase in peripheral concentration usnually precedes a fall in blood pressure it may be possible at times to determine impending shock by this method so that preventive measnres may be used. (Scudder.)
2. Red Blood Cell Count.
   A rise in the peripheral red cell count has been reported frequently. It has been stated that the greater the disproportion between the venous and peripheral blood, the graver the prognosis. Hemoconcentration is a characteristic of several types of shock, notably burns, marked dehydration, and certain chemical poisons, such as phosgene.
2. Hematocrit.
   The relation between the normal cell mass and serum content is 45-55. Changes in this relationship in either direction may aid in diagnosis and treatment.
4. Blood Volume.
   If there was a satisfactory, simple method to estimate total blood volume it would be of great help in determining the results obtained by various other methods. The Congo red and Evans blue are the ones most frequently used.—*Del. St. Med. Jo.*

EARTHWORMS DESTROY TBC. BACILLI

Somewhere in nature there is perchance an enzyme or a nonprotein fraction of an enzyme molecule which will inhibit the growth of the

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tubercle bacillus. How can this be found? At the moment there is no answer to this question, but it brings us to the next stage in the story. Some years ago William Charles White experimented with earth worms inhabiting soil that had been heavily infected with living tubercle bacilli. After sectioning many of these earth worms and also examining their excreta, he was unable to find any acid-fast bacilli, although the soil remained full of the living bacteria. At some point in the digestive tract of the earth worm these germs had been killed and digested. The presence of a catalyst in the earth worm was assumed but could not be demonstrated.

Today a follow-up on this early work is being undertaken by the National Tuberculosis Association. Virile tubercle bacilli are being fed into the digestive tract of the earth worm, the worm sectioned shortly after and again the disappearance of the acid-fast bacilli is confirmed. Theoretically the next step is to determine the section of the earth worm where this destruction of the bacilli occurs, collect a sufficient supply of this material and proceed to determine, if possible, the enzyme or fraction which possesses this bactericidal property. While the research may lead us into entirely different and altogether new paths, the suggestive action of gramicidin gives hope at least of further discoveries along this interesting line.—*Northwest Med.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

THE BLOOD BANK AND THE TECHNIQUE AND THERAPEUTICS OF TRANSFUSIONS, by Robert A. Kilduffe, A.B., A.M., M.D., F.A.S.C.P. Director, Laboratories, Atlantic City Hospital; City Bacteriologist, Atlantic City; Serologist, Municipal Hospital for Contagious Diseases, Atlantic City; Pathologist, Atlantic County Hospital for Tuberculous Diseases; Serologist, Betty Bacharach Home for Crippled Children; Serologist, Jewish Seaside Home, Atlantic City, etc.; formerly Major, Medical Corps, United States Army; and Michael DeBakey, B.S., M.D., M.S., F.A.C.S., Assistant Professor of Surgery, School of Medicine, Tulane University of Louisiana; Visiting Surgeon, Charity Hospital, Touro Infirmary, and Mercy Hospital, New Orleans; Associate in Surgery, The Ochsner Clinic, New Orleans. C. V. Mosby Co., St. Louis, Mo. $7.50.

This highly valuable book by well known authorities fills a definite need for a compact presentation of the new and growing therapeutic feld of the use of blood and plasma. The operaton of a satisfactory blood bank so that these products may be available for instant use is clearly set forth. Besides the consideration of the theoretical aspects of the therapeutics of transfusion, there is given in exquisite detail and with clarity, acceptable technique

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to be used in the laboratory procedures connected with this field. The technique of the therapeutic application of blood and plasma transfusions is well presented. The clarity of this volume is facilitated by the liberal use of illustrations and by attention to the details of every step involved in any technique under discussion.

The volume is exceedingly well documented and consists of a total of 558 pages. The style is clear and concise. The authors are to be congratulated by all those interested in this therapeutic field which is of such pertinent and growing importance.—*L. O. Dutton.*

DISEASES OF WOMEN, by Harry Sturgeon Crossen, M.D., F.A.C.S. Professor Emeritus of Clinical Gynecology, Washington University School of Medicine; Gynecologist to the Barnes Hospital, St. Louis Maternity Hospital, and St. Luke's Hospital; Consulting Gynecologist to De Paul Hospital and the Jewish Hospital; Fellow of the American Gynecological Society and of the Central Association of Obstetricians and Gynecologists; and Robert James Crossen, A.B., M.D. Assistant Professor of Clinical Gynecology and Obstetrics, Washington University School of Medicine; Assistant Gynecologist and Obstetrician to the Barnes Hospital and the St. Louis Maternity Hospital; Assistant Gynecologist to the St. Luke's Hospital and to De Paul Hospital; Fellow of the Central Association of Obstetricians and Gynecologists; Diplomate of American Board of Obstetrics and Gynecology. C. V. Mosby Co., St. Louis, Mo.

The ninth edition of this well known text hardly needs a comment. In keeping with profound advances made in gynecological diagnosis and treatment, there have been considerable revisions of the text. There is particular emphasis on the physiologic aspects of gynecology and these newer features have been reduced to their practical application. The newer knowledge concerning the endocrines in gynecology is well presented and reduced to usable principles. The book contains 948 pages and there are over eleven illustrations, many of them in color. The volume can be recommended without reservation.—*L. O. Dutton.*

MANUAL OF STANDARD PRACTICE OF PLASTIC AND MAXILLOFACIAL SURGERY: Prepared and edited by the Subcommittee on Plastic and Maxillofacial Surgery of the Committee on Surgery of the Division of Medical Sciences of the National Research Council, and Representatives of the Medical Department, U. S. Army. 432 pages with 259 illustrations. Philadelphia and London: W. B. Saunders Company, 1942. Price $5.00.

Several books on Maxillofacial and general plastic proceedure have appeared in the past two years.

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constructive surgery, with little or no training, and often with only a book as a guide.

Unfortunately some publications represent proceedures scarcely orthodox.

The value of a guide book is of necessity limited by, or to, the experience and skill of the authors and editing staff.

This manual is prepared and edited by the Sub-committee on Plastic and Maxillofacial Surgery of the National Research Council and Representatives of the Medical Departments of the U. S. Army as follows:

Robert H. Ivy, Chairman; John Staige Davis, Joseph D. Eby, P. C. Lowcry, Ferris Smith, Brig. Gen. Leigh C. Fairbank, Lt. Col. Roy A. Stout.
With Contributions by John Scudder and Frederick P. Haugen.

These names are recommendation enough.

The book is concisely written and profusely illustrated and covers both soft tissue and bone injuries of the Maxillofacial and neck regions, and includes chapters on burns, shock, skin grafting, and Anesthesia. All in a compact 400 page volume.

It is a "Must" book in this field.

—*W. John Pangman.*

NIGHT OF FLAME: By Dyson Carter. pp. 337. New York. Reynal & Hitchcock. $2.50.

For the individual who is endeavoring to find an authentic story of hospital life this is definitely not that novel. The characters are wholly unreal, and seem to think of little else but their sexual relations. Miraculously, each goes through a metamorphosis when the hospital is swept by fire, and each individual who has survived destruction by flame is cleansed and purged.

A mediocre novel, and no contribution to the Government's paper-saving program.

—*Malvina Spearman.*

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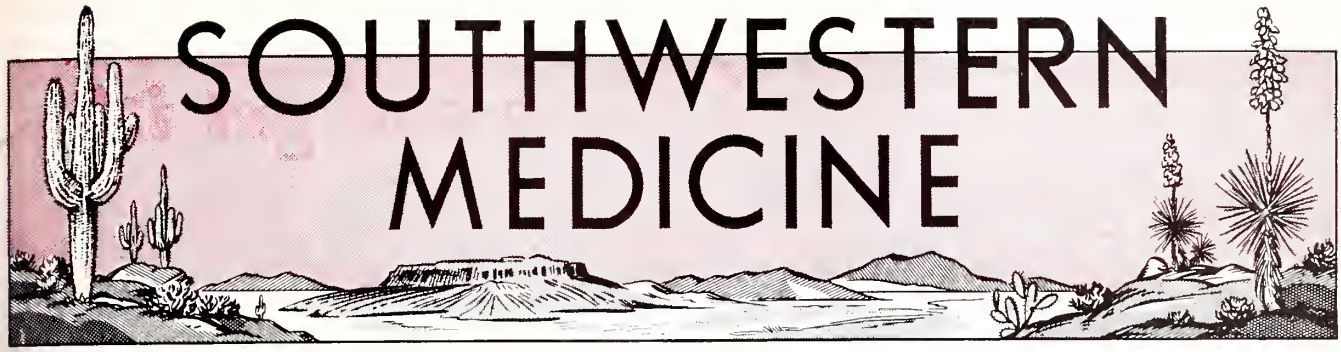

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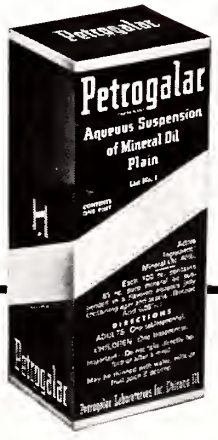

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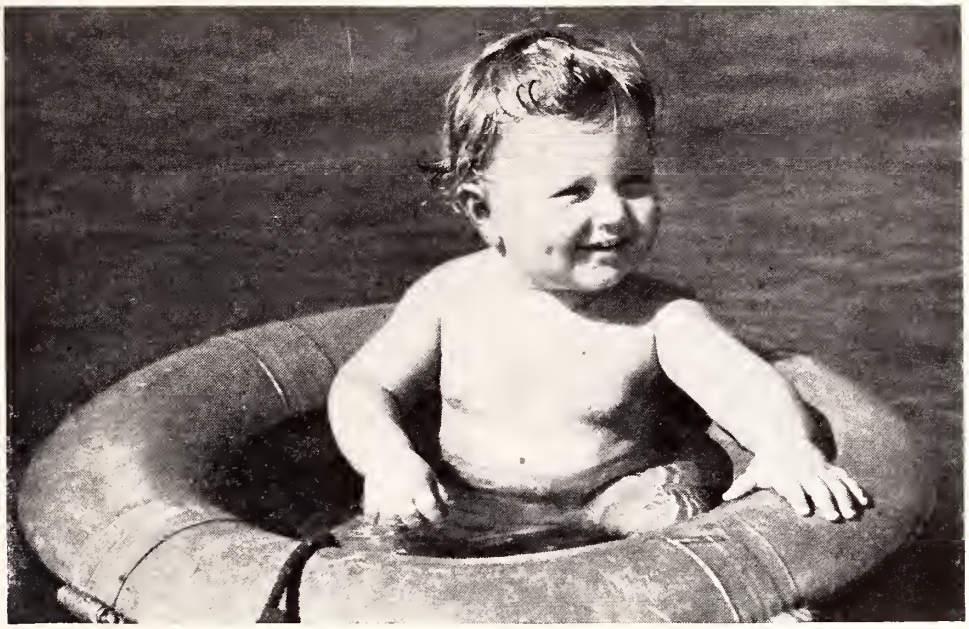

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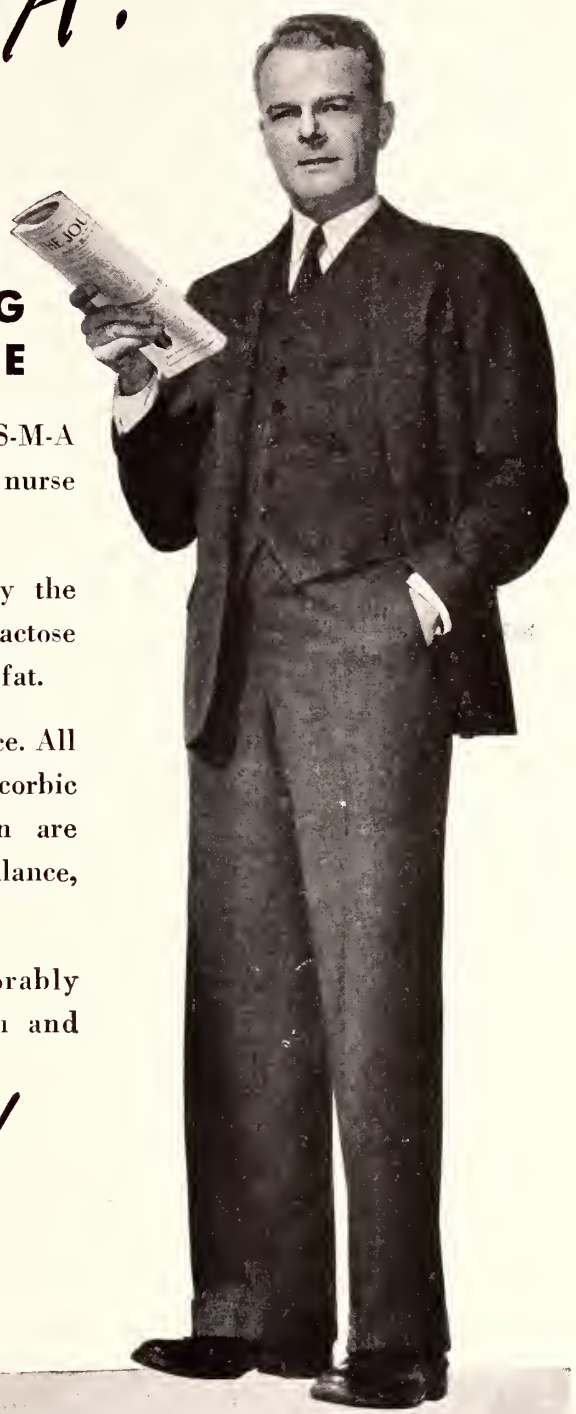

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El Paso County (Texas) Medical Society

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E. PAYNE PALMER, M. D.

At the Prescott session of the Arizona State Medical Association, Dr. E. Payne Palmer of Phoenix was elevated to the presidency. The previous year he had served as president-elect of the association.

Born October 30, 1876, in Churchill, Mississippi, Errol Payne Palmer attended public schools in his home town and a private academy in Port Gibson, finishing finally with study under a private tutor. He passed the State Boards of Pharmacy in Mississippi and Missouri, then entered Barnes Medical College, St. Louis, graduating from there in 1898, with the degree Doctor of Medicine. After a short period in practice in St. Louis, Dr. Palmer went to Phoenix. This was April 1, 1900. He has practised there ever since.

Post graduate study was pursued at various times at Cornell University, Vienna, Berlin and St. Bartholomew's in London. At the latter institution Dr. Palmer took the Fellowship course of the Royal College of Surgeons.

More than 100 scientific articles have been written and published in various medical journals by Dr. Palmer. He has been in demand for years as a guest speaker on various aspects of surgery before medical societies. In his travels he has visited most of the larger clinics and hospitals of the United States and Europe.

In 1907 Dr. Palmer married Miss Bertha Louise Schantz of Ohio. Seven children were born to the couple. Six are living, two being physicians. Four grandchildren have further enlarged the family.

Among the memberships held by Dr. Palmer are: Fellow American College of Surgeons, Arizona State Medical Association, American Medical Association, Southwestern Medical Association, American Association for the Surgery of Trauma, American Association for Study of Goitre. He has held elective office in most of these societies. At present he is active in the study of cancer, being a member of several

state and national organizations devoted to the furtherance of knowledge of that subject. Dr. Palmer is chief of surgical staff of St. Joseph's Hospital, Phoenix. He is also attending surgeon on the staffs of Good Samaritan Hospital and St. Luke's Home.

Active in civic affairs, the new president is on the Advisory Board of Selective Service, belongs to the Phoenix Country Club, and is a 4th Degree Knight of Columbus.

Hobbies pursued by Dr. Palmer are reading, writing, farming, mining and fishing.

As the Arizona State Medical Association enters the critical war period of this coming

year, it is fortunate to be led by physicians of the caliber of E. Payne Palmer. Having grown up in the service of Arizona medicine, few have had the opportunities to observe and learn and direct the complex business of organized medicine as has Dr. Palmer. Steady hands are needed now, and the new president measures up.

Problems of New Mexico Medicine

WALLACE P. MARTIN, M. D.
Clovis, New Mexico

SINCE this Association of medical men have, by their unanimous vote, elected me to the Presidency, no alternative option is left save its acceptance. You may be assured it awakens all of those finer sensibilities so necessary for the fullest appreciation of the honor you have conferred.

Having served for a number of years on your Legislative and Public Relations Committee, this additional proof of your regard and esteem not only kindles in my heart the warmest emotions of gratitude, but prompts the application of an honest zeal to the solution of the many problems that lie so near in the immediate future.

There comes to me, as I am sure to everyone so honored, at least an attempt to evaluate his qualifications for the leadership implied, and a consciousness that others are doubtless, preeminently better fitted by personal charm, genuine ability and a more seasoned judgment born of experience, to with more certainty attain objectives, the ultimate and final goal of all organizational effort. I trust no act of mine shall give just cause for mutual regret on my selection.

As President, may I welcome all who have come to this convention, and express the hope that none of you will deem your time wasted, that you leave with the happiest memories, and at least, if not expressed, a secret desire to return. Especially to those who have come to contribute of their special talents, some at great personal sacrifice and inconvenience, we shall owe an unpayable debt of gratitude. To all visitors, Military, Civil, Official, and otherwise, your presence here is an encouraging inspiration because of your manifest interest in medicine in New Mexico and its progress.

To the officials of Santa Fe and your Doctors, we extend thanks for your Convention invitation to this city, inseparably linked with the historical romance of the most ancient civilization in the Nation. All of the History of the Early West, united to insuperable scenic beauty, and an incomparable hospitality seems somehow mystically centered and crystallized here in this old, old Spanish town.

With your permission, I shall dismiss any discussion of the scientific features of this program, saying only, that there are many men here today, our guests, who are recognized nationally for their professional attainments, that it is my earnest belief that the rank and file of our membership are well equipped to practice medicine according to recognized standards, and lastly, that I desire time to emphasize the importance of the ever annually neglected Legislative and Public Relations Policies of this organization.

It has been my observation that the vast majority of our medical men absolutely refuse to concern themselves with Legislative and Public Relations, which have such a vital effect and influence upon the very life of this Society, which after all is only a composite of the Society's membership.

THE BASIC SCIENCE LAW

A recent communication from Dr. John Clark, Chairman of the Basic Science Board, advises that early and considerable financial help must be forthcoming else the Board, which has heretofore taken an active interest in investigations and prosecutions of violators of the practice of Chiropracty, Osteopathy and Medicine, shall be forced to limit its activity to the mere holding of examinations. There must be application of honest zeal to this problem and others of a Legislative nature, backed by an intelligently sympathetic membership over and above, the mere payment of annual dues if we are to hold the ground we have won, to say nothing of improvement of that position, by amendatory legislation and by appropriate reso-

(Presidential Address Delivered Before the New Mexico Medical Society, at its Sixtieth Annual Meeting, Santa Fe, N. M., June 25, 1942.)

lutions, supported by other allied organizations. The application of this policy might be instanced by the War Status of Chiropractors and Osteopaths, as they have no recognition professionally by the War Department. Obviously a group of men styling themselves Doctors with no military professional status should not be left to benefit by the exodus of medical men to the armed forces on an unsuspecting public. This matter must have the consideration of this convention. While there is nothing in the Selective Service Act that suggests or in fact permits their deferment or exemption as a class or group, there is a disposition by some County Draft Boards to do so, on petitions of citizens and further on a rather indifferent attitude on the part of the constituted authorities at Washington, and I am forced to the conclusion that this matter is a political football for General Hershey and Paul McNutt to play with in a "passing game", i. e., "passing the buck." Now as never before there must be a closer liasson between the allied professions and businesses to strengthen our legislative position.

LICENSURE OF ALIENS

Some years ago I attempted to get a Resolution through the Legislative and Public Relations Committee as a preliminary procedure to incorporation in the Constitution and By-Laws of this Society and enactment into law, the essence of which was the prevention of the licensure of alien citizens as Doctors in this State. I wish to inform you that some members of that Committee were astounded at such a motion. I am sure, now, that all of you will agree that this war has brought home to us more forcibly than years of peacetime exhortation the absolute necessity of such enactments. Certainly no individual should enjoy and capitalize upon the liberties of this nation without becoming a citizen through naturalization. I shall submit through proper channels a Resolution for their consideration.

DEPARTMENT OF PUBLIC WELFARE

Now as never before with a plentitude of well-paying jobs and positions for both men and women, with generous appropriations for soldier dependency, with the creation of new interest in agencies readily adaptable into the military program, to which you and I have contributed, namely, the Salvation Army, Red Cross, U. S. O. and others; with the general improvement of the Public Health under Federal supervision, of War industries and the military forces; with the consideration of rehabilitation of Selective Service rejectees, coupled with an economy conservation policy, preventing undue and unnecessary spending and the utilization of material formerly thrown in the discard heap, there must be just cause for the belief that much of the Department of Public Welfare's spending is not only unnecessary but unjustified, and that those Federal, State and County agencies are faced with a grave responsibility in its expenditure. In this connection may I call your attention to a Resolution passed by the House of Delegates without dissenting vote, binding morally, if not technically, all members of this Society to a gratuitous medical service for all of the Department of Public Welfare's indigency. Dr. Mulky wrote me that the Welfare Department was astounded by such generosity and well they might be, but may I inform you they are now disappointed at the superlatively inadequate examinations that they are receiving and the medical opinion upon which they must predicate their expenditures. This action by the House of Delegates must have come as the terminal function of a body more ready to adjourn than convene for deliberative consideration of Resolutions before it. I shall present to that body at its earliest session reconsideration seeking rescindment of its former action, and a return of medical services into the field of compensability on a reasonable basis, the same as other administrative expenditures.

STATE HEALTH DEPARTMENT

The State Health Department is operating under adverse field conditions, due to lack of nursing and medical personnel, and they in turn are handicapped, especially the medical men, by lack of authority over their District personnel; School District problems; jurisdictional venereal disease problems, with County Societies; and the interrelationship with fields of other State Bureaus, and as usual the tremendously large areas to be served.

Again there is the old conflict between the theory and effect of the statute stressing the type of work intended by the law, and supervision of existent sub-Health Departments; and the actual practice of medicine which meets

with and should meet with the resentment of organized medicine in this State. A third factor in the picture is a practice on the part of County Commissions and City Councils to expect the District Health Officer to shoulder all of their problems of medical care for the indigents, and in fact the favored "poor constituency" of minor politicians. This practice has become so flagrant in some sections that city and county physicians have been dismissed and no pretense is made for maintenance of medical health supervision.

Obviously District Health Officers cannot be private physicians for every little crossroads town in their Districts. Schools again frequently are difficult, wishing to monopolize an already overworked District personnel.

I feel that some attention should be given to the venereal disease service of this State. Let it be understood in making these remarks that I am not unmindful and unappreciative of the splendid work of the United States Public Health Service and its relations in each and every State and Territory. To speak concisely, the Venereal Disease service, like other agencies financed by "matched funds" finds itself circumscribed by Bureaucratic interpretations of existent laws, which make up what is comprehensively called "policy".

This method of State operated agencies is a subtle means of centralized control at Washington, in this particular case the United States Public Health Service. This often ineffectively operates because of lack of information in the practical operation and in the end stultifies by its prohibitory supervision the force and independent action of each State to solve its own health problems. It is my personal opinion that this State would be vastly better off without the Federal appropriation and operate under a strict economy. Taxes are collected from the States to the Federal Government and then allocated back to the States for any purpose presents a tragic administration absorption of tax monies.

Friendly criticism of the Venereal Disease Program are these:

1. Reluctance to the Venereal Disease Service to treat adult syphilities only to the point of noninfectivity.

2. Reluctance (policy of Prisons) to treat Federal prisoners over and beyond the point of infectivity, which is admittedly a variable which fails to conserve "man power" in this war, at least a military potential.

3. The treatment of all cases, according to the conditions under (1) and (2) without regard to ability to pay.

4. Investigation and treatment of Venereal Disease contacts is impracticable if not impossible because of limited personnel.

MILITARY CONSERVATION OF MEDICAL AND SURGICAL PERSONNEL

I am sure it is the sense of this Society not only that every effort must be made to conserve doctors and nurses in our war effort but that there should be established State Boards in order to equitably distribute the load and uniformly protect the health of our civilian population. It likewise must be the consensus of this body that existent organizations should be utilized rather than the creation of other agencies which must operate through those organizations to get results. That every effort should be made for the utilization of hospital facilities for the training of nurses' aides in order to release the greatest numbers of trained nurses for the military services. I refer to the great limitations under the present plan of creating only one school in Albuquerque for this important work. The hospitals and personnel of other cities should be utilized notwithstanding the present technical legal prohibitions now existent under the laws governing the establishment of nursing schools.

Further, it is my opinion that matriculants in the nurses aide courses should be given credit after the war for work done as an added incentive to take up the nurses aide courses.

ASSIGNMENT AND PROCUREMENT SERVICE

Three factors enter into this problem:

1st—Every doctor should volunteer his services to his country at this time, without regard to age, dependency, or financial obligations.

2nd—Every doctor's services should be fully utilized.

3rd—There must be some correlation and implementation for the procurement and assignment of medical personnel for all branches of the military service.

CHALLENGE TO AMERICANS

The past few months of this war, since Pearl

Harbor, there are several things we should have learned conflicting military communiques frequently to the contrary, and they are that the Japanese soldier is worthy of our steel, and that the German soldier, as in the first World War, has left no doubt of his courage and military efficiency. All we have fought thus far, notwithstanding Bataan, Coral Sea, and Midway, is a defensive and losing war.

Let us as doctors and as citizens arouse ourselves from apathy and indifference, divorce ourselves from skepticism and an inflated optimism in all matters pertaining to this war. Let us have implicit faith in the constituted authorities, the only authority we have, to properly direct our services and our every effort. We have suffered scarcely an inconvenience, even our greatest financial expenditures can be regarded only in the light of personal investment creating competencies for later life. Contrast this, if you please, with wounds, the dysentery, the starvation, and the dead and dying of our armed forces of our far flung front. Why! to protect the homeland — you and me.

The Japs are now on the Aleutians, bombing off Puget Sound; Rommel is in Egypt; Sevastopol is falling; s' ip losses are in excess of building; the Federal Treasury is strained by an ever increasing mountain of indebtedness; your homes, your families, your fortunes and your sacred honor are now in jeopardy, your course of action and direction is as clear and unerring as the Polar Star.

This Flag has a renewed significance today and your investment with your life, if necessary, gives it an added lustre. This Flag has inspired our people for 160 years, both in Peace and in War. The freezing soldiers of Valley Forge followed it from Bunker Hill to Yorktown; men in blue carried it from Bull Run to Gettysburg; it directed the path in the war with Spain, and its starry folds inspired those khaki-clad lads from Chateau Thierry to Versailles, across that great battle-scarred face of western Continental Europe. This is your flag and mine—it belongs to every citizen. Its starry folds are wet today with the mists of the Pacific from Alaska to California—its iridescent beauty glints the waves from New England's farthest crag to the utmost finger of Florida —it lines the Gulf—inspirits Mexico across the Rio Grande—it fortlessly fronts England's Canadian Dominion—it flies from every school house, from every ship on every sea — the emblem, the spirit of liberty for all mankind.

Headache and Diseases of the Accessory Sinuses

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THE writer has thought it worth-while in this short talk to try to clear away some of the confusion that has existed in the minds of laymen, and to some extent in the practice of medicine, concerning the various forms of headache, especially those connected with affections of the nose. The use of very few words in our language has been more abused than has the use of the word "sinus", and few words are less understood by the average layman. Head pains of every conceivable kind and occurrence have been laid to sinusitis of nasal origin. Concerning any form of head discomfort one often hears such phrases as, "I've got sinus again.", "My sinus is giving me fits.", "I've been in bed with sinus." The abuse of the word is comparable to the classic joke about the Danishman who went to the hospital for an operation and was put to sleep with "anatesia." His friend said, "Well, aye don't know what kind o' girl Anna iss, but aye do know Jens' failing."

So, this little known and hazy thing called sinus is held responsible for a multitude of conditions which very often do not in any way relate to sinusitis. The bizarre sympton, headache, associated in tradition with the thing people call sinus but proceeding from a great variety of causes, is drawn into the confusion about sinusitis which, for the most part, is a definite entity and need not be confounded with many conditions in no way related. It would, therefore, be fortunate if we could clarify to some extent the lines of distinction between diseases of the nasal sinuses and the ancient

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migraine, the allergic and the vascular pains, which are numerous, the specific neuralgias, the ties, and the aches which belong to well known systemic diseases.

MIGRAINE

Since the first great headache in the Garden of Eden probably no other type of human illness has been so widely distributed among mankind. The form which characterizes migraine, in fact the disease itself as a distinct entity, was recognized very early in antiquity, and its literature has now grown to great volume. Galen gave the name hemicrania to the one-sided headache. This name passed through many modifications in various languages. The French form which we use has now obtained almost universal acceptance.

Migraine, like hysteria, is so thoroughly protean in its many aspects that it simulates nearly every ailment under the sun. Its outstanding feature is an intense, periodic, one-sided headache which in almost 100% of the cases is an hereditary malady, traceable from branch to branch in the family tree. It comes on early in life and leaves early, few of its more severe effects being found after the fifth decade. It occurs oftener in females than males and is usually inherited through the female line. In both of these characteristics it is sharply different from the so-called histamine headache now receiving so much attention. In the early stages the attacks of migraine often present prodromal signs of mild degree, such as fever, restlessness, pallor and nausea, and these may pass off without the more severe headache and vomiting. No doubt this is true very often in early childhood and may easily account for many of the mystifying events in child life. The headaches that children have who suffer from migraine may not be so violent as these headaches become in after life; but the temperature may go up, the prostration may be alarming, abdominal pain may be pronounced, and vomiting may be of a severe grade. Such occurrences upset the parents greatly, consultations are called; one day surgery is considered and the next day everything may be as calm as a spring morning. Some of the attacks do not pass away so quickly, however. The fever may be persistent, the throat red, the tonsils even swollen and there is the picture of infection. The doctor may say, "When Johnie gets over this we must have his tonsils out." The cyclic vomiting may arouse the vasomotor system to such an extent that the turbinals exhibit great swelling and the diagnosis of sinusitis is made. So deceiving is the picture that the antra may be punctured and irrigated repeatedly without finding any pathology there.

The headache part of the syndrome, however, does not become paramount until puberty is approached, as a rule. Then this becomes more characteristic, the regularity is outstanding, and weakness and depression accompanying the illness are more evident. It is here that good habits of history taking become helpful, and many an error in diagnosis may be avoided if the physician will take time to inquire into the story of similar attacks, their occurrence in other members of the family, and their association with numerous outbreaks of allergic phenomena, such as hives, eczema, hay fever and asthma. Following these leads, one often comes much nearer to understanding the true inward condition of the patient who is a lifelong sufferer from some allergic or vasomotor disturbance. Then it will be realized that countless numbers of individuals who present symptoms of congested noses, running eyes, ringing ears, and throbbing temples are not candidates for surgery. Slashing a path through the delicate and complaining tissues that line the air passages of the head will not cure systematic disorders which are merely being expressed by these exquisite indicators. The turbinals and the mucous membranes are the real barometers of the body. They quickly and accurately register every important change and process; and when we learn to read their messages truly, we shall be far better physicians and shall discredit the sentiment now so widely expressed by the laity that "if you go to a specialist he will always want to operate; and once you have had an operation on your nose, always you will have to have another." It is the writer's considered opinion that in the realm of headaches and vasomotor disorders, more people get well by just getting old than by anything we do for them. In his youth the writer was sorely afflicted with migraine and hives. Now all that remains is an occasional mild scotoma.

But to return for a moment to the problems of the budding youth when familial headaches and those associated with sinusitis may become confused. The frontal sinuses do not achieve their full development until after puberty. At

this age the turbinals are large and vascular. (They are in some way intimately related to the sex development.) Congestion is the rule; nasal functions so essential in this hyperactive stage may easily be disturbed by obstructions to the drainage of the accessory cavities. Soft tissue swellings interfere with the ventilation of the passages not yet fully widened by the natural growth. Infection now is fraught with especial danger. These youths are notoriously prone to exposure; they refuse to wear protective clothing; wet heads and wet feet make congestion doubly effective.

THE MECHANISM OF HEADACHE

It may be well to pause here and consider briefly what has been called the mechanism of headache. For a long time the whole subject was shrouded in uncertainty and is not now any too clear. Many theories have been brought forward to explain the method of headache. That one which held reflex irritation responsible was discarded long ago, for it becomes quite untenable when you remember, for instance, that many people have bad eyes without having any headaches. Kraft-Ebing believed that disturbances in the cerebral cortex or in the nuclei of the brain might account for headache and dizziness. Obstruction to the flow of spinal fluid, hyperemia, blocking of the ventricles—these were all used in turn as explanations of the head pains. Fenton coined the name "cerebral glaucoma", which did very well to explain such conditions as scotomata and hemianopia, but its application could not be extended much further than that.

Allergy and protein sensitization came in for widespread debate as causes for headaches, and the contention does seem tenable when you remember that asthma, eczema, serum sickness and so on do have their beginnings in some form of faulty protein metabolism. Then came intestinal stasis and the toxic theory. The hypophysis received very serious attention, and you might very well give credence to this explanation of headache on the basis of hypophyseal disturbance when you think of its anatomical position with relation to the oculomotor and the trigeminal nerves and the possibility of distentions, pressure and what not. But many factors of headache cannot be explained even this way.

Early investigators were intrigued by certain similarities between migraine and the convulsive seizures, and there was always the perplexing fact that these people were just as well between attacks as anyone might wish to be. Any explanation must take into account the suddenness of the spells, their bizarre variations, the rapidity of their amelioration, and the freedom of the subject afterward from any apparent vital defect. Gradually it came home to the student that only a vascular change could account for all of the phenomena. Vasodilatation, vasoconstriction, congestion, and anemia entered fully into the picture. Vascular crisis and vessel cramps came into use as descriptive terms. Then circulation in the brain was found to be largely controlled by the superior cervical ganglion and the carotid plexus. Someone found out that severe attacks of migraine could be controlled or abated by pressing on the carotid artery in the neck on the same side as the pain, and the local distress could be diminished or abolished by pressing on the artery in the vicinity; e. g., the temporal or the occipital.

Cushing, in 1910, brought out the fact that marked dilatation of the temporal vessels could be seen during migrainous attacks and further, (because of his extreme thoroughness in working up his cases) he found that frequently people who underwent subtemporal decompression were cured of life-long headaches, presumably by ligating the middle meningeal artery.

It is pretty well assured that the brain substance is devoid of pain sense. This is also true of the membranes of the cranium, except around the main vessels. Faradic stimulation of the vessels of the dura and the larger ones of the pia produces pain. In operations on the brain under local anesthesia, it is found that traction on the falx cerebri or the tentorium of the cerebellum elicits painful sensations too. The logical deduction is that our headaches arise from changes in pressure or tension in these sensitive areas of the theca.

Recently some brilliant research work has been done to clarify this whole subject. Graham and Wolfe reported in the Archives of Neurology the results of their investigations in the treatment of migraine with ergotamine tarte (gynergen). This alkaloid inhibits powerfully the nerve endings of the sympathetic system. The resulting action on smooth muscle is to

decrease the amplitude of the pulsations of the blood vessels, hence vasoconstriction. These men placed tambours on the temporal and occipital branches of the external carotid and connected these tambours to a camera so that the movements of the vessels could be photographed on bromide paper. At the height of an attack of migraine headache, 0.5 mg. of ergotamine tartrate was injected intravenously. Records of the pulsations of the arteries were made frequently until the pain was abolished. Twenty such experiments were made; each injection was followed by decrease in the amplitude of pulsations; and this decrease was paralleled closely by a decrease in the pain.

By another very pretty experiment, Wolf proved graphically the effect of pressure within the temporal artery. That vessel was exposed, a syringe filled with normal saline was tied into it, and about one inch distally pressure was applied with the finger. As the saline was injected and the vessel distended, severe pain was felt over the temporal region. This is the simple reverse of what had been done many times before—reducing headaches in the temporal region by pressure on the already distended artery.

Another historical contribution has recently been made by Horton of the Mayo Clinic, who described a series of seventy-two cases of severe, paroxysmal, unilateral headaches coming to people who had passed the meridian of life, some of them elderly. To this type he has given the name "Histaminic Cephalalgia." Unlike those who suffered from migraine, these people showed no tendency to hereditary taint; more of them were men than women. Their attacks came on suddenly and often, were accompanied by congestion of the nose, running of the nose and eyes, and a distinct rise in the local temperature of the side involved. These headaches could not be controlled by ergotamine tartrate and showed no tendency to abate with passage of the years. This is, then, an affliction of elderly males for the most part, while migraine is distinctly a disease of youth of both sexes. The name is linked with histamine because the attacks can be produced at will by subcutaneous injection of 1-10 to 1 milligram of that substance and can be cured and controlled by a process of desensitization to histamine. The work of Horton and his colleagues has been thoroughly checked and verified by Baker of Johns Hopkins in a large series of cases. Here is then another distinct clinical entity with a specific therapy.

(The subject of headache is so vast that a short treatise like the present could hardly include the various neuralgias and the head pains of special diseases. They are therefore passed over.)

THE MYALGIC HEADACHE

The headache most easily confused with the pains of sinusitis is the indurative or myalgic type. Those of us who had the good fortune to spend time with Max Halle in Berlin can never forget his oft-repeated discourses on "*Kopfschmerzen und Rauschen in Ohren.*" (Headache and ringing of the ears.) Hardly a patient came to his clinic who did not receive a terrible pommelling of his neck muscles. (Halle was very rough in his handling of patients.) It was his idea that there is a very prevalent myalgia of the muscles innervated by the brachial plexus with nodes or spasms, stiffness and tenderness, and along with these, headaches which are frequently mistaken for sinusitis, otitis, and mastoiditis. Halle published his first description of the syndrome in the Monatschrift in 1911, and the writer heard his address before the Berlin Laryngological Society in 1914. His contentions were very convincing and well received. When we visited him again in 1924, we found him still discoursing on indurative headaches. He had established his point in Germany; physicians everywhere were on the lookout for nodules in the muscles of the neck, but strangely enough men in this country had taken very little notice of his articles. Cabot says in his book "Differential Diagnosis": "This probably is the most frequent form of headache, yet seems to be unknown to the great majority of physicians, although it has been described in the textbooks for decades." In our experience, this entity is most often confused with sinusitis. A careful inquiry will usually disclose the extreme sensitivity of the patient to cold exposure. Palpation discovers the tender areas in the neck muscles; sometimes the nodes in the sternocleidomastoid and the trapezius. The pain is often referred to the sinus areas. A striking group of complaints often go with the above condition. The patient says the muscles of her

throat feel "tight"; there may be a choking sensation or a spasm; she may feel dizzy, even slightly sick at the stomach; pain on swallowing or thickening of one or more cervical muscle is sometimes pronounced and may last for weeks. When urged to describe the distress they feel, these patients are not specific, either in their terms or the location of their pains. They nearly always point to their "glands", meaning the sternomastoid muscle, and there usually is tenseness and tenderness there and this condition extends to the tip of the mastoid and around to the back of the neck. The pain that they feel on swallowing is not that of tonsillitis or the ordinary sore throat—it is a composite stiffness, thickness, and tenderness of the throat.

A good many writers have tried to find terms to explain or describe the thing we call myalgia. Certainly the patients cannot do it. Some investigators have concluded that the characteristics of pain in somatic structures depend more on the location of the stimulus than on the kind; that tendon, periosteum and muscle each has its own type of pain, and this varies in different parts of the body, even in different parts of the same muscle. Fascial pain is sharp; that of muscle more diffuse and more apt to be referred, and this reference varies in different individuals. Further, the referred pain of muscles is always a complex of deeper structures. So the term indurative headache is not altogether a clear one. There is a spasm or thickening of one or more cervical muscles, but nodules cannot always be found. The line of attachment of the muscles at the occiput is often tender on pressure, and the sternocleidomastoid will sometimes stand out like a gas pipe. The patient places her hand there and says, "My glands are swollen." People often call these muscles "My glands." This spastic or tender condition of the muscles is associated with headaches which often have queer distribution. The attacks may be mild and fleeting and occur frequently, or they may be severe and lasting and make the patient really sick. They occur in people of all ages and always in those who are sensitive to cold. Drafts and exposure play an important role. Chilling of the body, shampooing the hair, going without a hat may start the attack. Such people make fine barometers — they register changes in the weather. They are upset by strains and excitement; their attacks come on after infections or weakening illness; in fact, in many of these cases the myalgic state begins with an exhausting illness. If a careful history be taken, these folks will be found to be afflicted with vasomotor imbalance, to be high strung, hypersensitive and with what we usually speak of as unstable psychic set up.

The spasms and indurations of the cervical muscles do not always parallel the headaches. There may be stiff and tender muscles without severe headache and vice versa, but given a head pain of obscure origin, deep palpation of the neck muscles will often reveal the true state of affairs. This applies to many of those pains in the occiput, frontal or temporal regions behind the eyes, even in the throat; pains that are dull, pushing, expanding, throbbingor lancinating; distress localized in an ear, the teeth, even the arms. Often occupational incidence comes into play. Some patients drive trucks with open windows, or bend over machines, or sit with the head bowed over books, or with the neck strained in various ways. The muscles of the neck are postural muscles and myalgia seems to be a function of postural muscles. Their metabolism is only 25% higher than that of a paralyzed muscle; they receive a more or less constant stream of low grade nerve impulses to keep up their tone, and so can easily pass into a state of partial tetany.

All skin vessels contract when exposed to cold in order to conserve heat. Normally, this vasoconstriction raises the blood pressure, stimulates metabolism and the heat center; body temperature rises and then vasodilatation occurs. This is the physiologic cycle. In these cases under discussion, the first stage comes on strongly because of the unstable vasomotor system, but the second part of the cycle is deferred. Prolonged vasoconstriction produces ischemia, release of histamine, stagnation, pain, and tenderness. Under such circumstances, a striking demonstration can be made, not alone for diagnosis, but also for the most acceptable form of treatment. Procaine injected into one of these tender nodes or painful areas will dissipate the swelling and cause relaxation of the muscle and remission of the headache.

Now a few words by way of recapitulation, and just a little theorizing about the mechan-

ism of all headaches. Granted that the dura and the pia in the areas around the vessels are sensitive and that headache is, for the most part at least, a vascular phenomenon. We do know that electrical or chemical or mechanical stimulation of these areas produces pain. We have here recounted good and sufficient evidence which proves that distention of the larger arteries and maybe veins does produce headache. Histamine and migraine headaches follow stretching of the carotid artery and branches. Is it likely that brain tumors, hydrocephalus and lumbar puncture, etc. distort the vessels? Does the pressure on the nerve endings in the nasal sinuses, at the root of a tooth, or in the fundus of an eye) operate to produce headache through the medium of the autonomic chain and its effect on the vessels of the cranium? Then there would be more than one pain from a given stimulation. There would be the strictly local pain, then the diffuse pain in the near vicinity, and third the headache. Then there is often a terrible pain from thinking about these. There comes into play that amazing realm of memory and association whereby past stimuli and past suffering are stepped up by fear and imagination as compound gears multiply power a hundred fold. A given stimulus may never have the same effect in two different people. Bearing in mind the tremendous familial and racial forces that have produced any given nervous system and the fabulous workings of the autonomic instrument, is it any wonder that individuals vary so widely in their reactions to what is apparently the same stimulus?

HEADACHES ORIGINATING IN THE NASAL ACCESSORY SINUSES

Against the foregoing sketchy background, let us now consider the headaches of nasal origin. The accessory sinuses of the nose are closed cavities with rigid walls, often dangerously tight. Their drainage facilities are seldom ample, and when the narrowness of the bony ostia is taken in conjunction with the erectile mucous lining with its proneness to congestion and swelling, we have one of the most fragile and menacing set ups to be found anywhere in the human body. It may be sacreligious to say so, but whether or not our present physical forms were achieved through natural selection or survival of the fittest, or otherwise, it would be difficult to find any reasonable excuse for the ponderous stupidity exhibited in the construction of our nasal sinus system.

Unlike the brain substance and its coverings, the linings of the nasal cavities are abundantly supplied with nerve endings. These linings are at once mucous membranes and periosteum together, only moderately equipped with lymphatics, but very poorly endowed with a capillary blood vascular system. Taken with the poor drainage through the outlets, this makes infection difficult to relieve.

In the production of pain in these cavities, two or three factors must be considered, though in all cases it is essentially a pressure phenomenon. Some of the sinuses are narrow, their walls close together, and the air space only slit-like. When the lining is engorged the two sides impinge on each other. Even where the space is more roomy, the constant secretion of heavy mucopurulent material without adequate exit inevitably raises tension to the painful stage. Maceration occurs and toxic conditions are induced. There is another possibility: if, as in the case of the frontal sinus, where the tube-like outlet is long and devious, the lining swells and the exit is blocked, blowing the nose may force air into the bony pocket, raising the pressure without immediate recoil. Or, by the action of swallowing in drawing air out of the cavity, without return, a vacuum may be produced—again with painful effect. This is the vacuum headache of Sluder, though the theory of its production is not without its opponents.

The foregoing paragraph relates particularly to the presence of bacteria in the closed cavities with attendant congestion and swelling and the toxic effects which ensue wherever infection without adequate drainage is found. Both pressure and toxemia conspire to produce pain. But there is another important factor which has to do with the edema occurring in allergic manifestations. In the acute infections it would be difficult to evaluate the relative effects of mechanical pressure and toxemia, but both are greatly enhanced when allergy is involved. Acute infections always become more complicated, and by far the most difficult of all chronic sinus conditions to treat are those where Staphylococcus infection exists in an allergic field. Stagnant, decomposing secretions with their chemical irritants macerate mucous

membranes that are made bloodless and utterly devoid of living resistance by the pressure of the edema underneath. But even in this dramatic situation relief from pain comes strangely enough by the workings of nature herself without outside interference. Some degree of immunity is quickly produced to the toxic substances and the nerve endings become insensitive to the pressure. On examination one sees, in the chronic cases especially, nasal chambers packed with inert, pendant masses, soggy mucous membranes—all bathed in more or less foul secretion. One important result is the serious crippling of the respiratory function; another, the presence of an active center for reflex vasomotor disturbances, (as well as the toxemic effect of the stagnant secretions).

The patient who suffers most, however, is the one just described who is subject to acute exacerbations of nasal infection on an already edematous mucous membrane. It is not unusual to find the antra and the upper sinuses nearly full of these thickened lining tissues. When the sphenoid and posterior ethmoids are thus invaded, with their numerous crypts and recesses and fissures, their sensitive vessels and rigid nerve channels, the upper limit of misery is probably reached.

The pains of sinusitis are more or less localized, especially those due to infections, which themselves are circumscribed. Those due to allergic swellings are more general, since the edema is less likely to be limited; they have less the quality of splitting, throbbing, sickening sensations than dull discomfort. The headaches in acute infections of the frontal cavity are apt to be the most agonizing of all. With its wide extent, bizarre shape—flat, trabeculated, distorted—some pockets almost isolated, the inner and outer tables at times nearly in contact, the membranes well supplied with nerve endings, no wonder so much distress can be generated here. The funnel-shaped outlet is easily blocked by swelling of the mucosa, which is thicker than in the upper part. The channel is devious, so that it is not uncommon to have an accumulation of purulent secretion before any appears in the nose. The examiner depends on finding this secretion to distinguish between allergic states with edema and frank infection. X-ray films often show the fluid in the sinus before any can be seen outside in the passages.

Frontal sinus pains are morning pains. Those of allergic origin begin as soon as one gets out of bed. The first draught of cold air or contact of bare feet with the cold floor will start the sneezing and the watery eyes and the tight nose. In acute inflammation, the pain somewhat later, after the day is started, and works up to a climax near the middle of the day, then wears away in the afternoon. Diagnosis is helped by the appearance of the swollen membrane about the anterior end of the middle turbinate or the pus to be seen in the same place. In the allergic states the swelling is everywhere. Sometimes antrum inflammation complicates the picture by referring its pain to the region of the frontal sinus, but there will usually be tenderness in the teeth and the anterior wall or the ascending ramus of the jaw. Eye conditions are usually not difficult to place.

Diseases of the posterior group of sinuses do not produce characteristic pains with such regularity as do those of the anterior cells. The spheno-ethmoid syndrome is characterized by a feeling of pressure in the temporal region, mounting at times to a boring pain, always deep and often extending into the mastoid or occiput. The pain may even extend into the neck and shoulder, the so-called Sluder's Syndrome. Naturally, when pains are distributed the difficulty of fixing the responsibility of one sinus or another becomes greater. The allergies are supposed to produce their pains mostly through edema of the brain; unless the nasal signs are specific, even in the presence of infection, a generalized headache may offer great difficulties in diagnosis. Toxemias even where they proceed from empyemas of one or more sinuses may be entirely general in effect, referring pain to distant parts of the body. In such cases two important aids may be brought into play; namely, X-ray and cytology. With the perfection of roentgenography and especially since the advent of iodized oil, the diagnosis of accessory sinusitis has been brought to a fair degree of efficiency. Cytology has helped greatly in distinguishing the purely allergic states or combined ones from the specific infections. A distinct increase in the number of

eosinophiles has been found to accompany the allergic conditions.

TREATMENT

There probably is not time, nor is it particularly desirable, to attempt an extended consideration of the question of treatment of headaches. It is almost an unwritten law that each case should be considered alone. Certainly, no two are alike. The subject of migraine is so extensive and the literature so abundant that the physician has to fortify himself by considerable study in order to cope with his problems. The use of erogtamine tartrate has been of great help in many cases, and the justification for its use is ably set forth in the article by Graham and Wolff in the April 1938 number of the Archives for Neurology and Psychiatry. The so-called histamine headaches have become a distinct entity in the practice of medicine. A good survey of the subject is given in the issue of February 1, 1941 of the Journal of the American Medical Association. An extensive discussion of indurative headaches is to be found in the November 1941 number of the Archives of Otolaryngology.

Since the introduction of the sulfonamide drugs, the treatment of acute sinusitis has been greatly simplified and the incidence of the complications has been greatly reduced. Mastoiditis, for instance, often kept us busy during the winter operating on scores of cases, and many were the severe complications. Now such cases are rare. It seems that we have grown very materially in wisdom in recent years as well as in knowledge of newer physical and chemical methods of treatment. We have at last come to realize that the resistance of the body itself alone can save us from untimely death; that until the tissues themselves acquire the power to limit the spread of infections, surgical interference is apt to jeopardize the chance of recovery. It may require fine judgment and often courage to wait until nature has done all that she can before we venture in with the knife, and by the same token we are apt to lose some fees.

All this is especially true in the work of the otolaryngologist. Time was when a headache which could be reasonably traced to an accessory sinus was almost a signal for some vigorous procedure—a probing, a dilation, turbinectomy, or what not. But the wounding of tissues only adds fuel to the fire of infection. The wise physician resorts to physical measures early—rest in bed, the application of heat abundantly, sedatives, above all adequate shrinking by neosynephrin and ephedrine, then vacuum; proper food, fluids and drugs. If pus does finally collect in a closed pocket, some conservative method of evacuation may have to be resorted to. An abscess of the antrum is easily relieved through the natural ostium, without the wounding of tissue, by irrigation. The same is true of the sphenoid. The frontal abscess may give more trouble; it is often exquisitely painful. Very few cases, however, do not yield to adequate shrinking of the mucosa, abundant heat, etc. When the frontal cavity becomes too distended to yield to the simple measures, either through neglect or grevious complexity in its outlet, the following procedure has been found best: A small incision is made in the floor of the sinus above the inner canthus and the cavity is irrigated with warm physiologically normal saline solution, without any wounding of the lining whatever. A small, rubber tissue drain is inserted and daily irrigations repeated until the natural ostium resumes its function. When this is properly done, chronic sinusitis will seldom follow the acute cases. It is approximately true that when we can get our cases of acute sinusitis early and earnestly follow the conservative methods outlined, we can expect to secure bonafide cures in 99% of them. In a certain part of these, however, we shall have to endure considerable anxiety before the result is obtained.

Within the past two years much has been written about the use of X-rays for the treatment of acute sinusitis, with reference particularly to the painful cases. Some writers go so far as to advise the use of irradiation in all common colds. So far, results reported have not been outstanding, certainly no better than we have all been getting by adequate shrinking, rest and heat; in short early drainage. The use of X-ray on children must always be guarded. The effect on ossification centers can be disastrous. We think that it is always well to keep methods that are tried and true. Nature is a wonderful physician, and there is always danger in striving to convince patients that we are doing something out of the ordinary.

Reference has already been made to the treatment of chronic sinusitis. There is probably nothing more difficult in medical practice. When the sinus linings have become thickened and corrugated and often filled with punctate Staphylococcus abscesses, polyps form near the ostia, hang into the meati and more or less effectively block the drainage of the cavities. Exudate is increased greatly over normal, the odor becomes distressing and sneezing and blowing tend to heighten the pressure and extend the pathology into the utmost recesses. Headache becomes a fairly constant depressing and discouraging obsession. When all this occurs in individuals with the allergic tendency, few conditions could be worse. Polyps recur when removed, even if all mucous membranes are denuded—they ooze from the bone. Treatment requires infinite care and patience. Above all else is the need of desensitizing the patient to every possible allergen. Chemical and vitamin therapy are important, and irradiation is often helpful.

Protecting America's Children

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FOREWORD

We are now in an all out War for the preservation of our democratic institutions and for all that we cherish and hold dear. The Nazi philosophy of the supremacy of brute force is not compatible with the idea of helping the weak and under-privileged, which has always been the custom and I might say the glory of medical practice. If Hitler wins this war a return to the dark ages will be the result, but thank God that will never happen.

While we are winning the war, we must not in our zeal for success lose sight of the most important problem—the America of the future—and the most important man of the future, the boy who has not yet shaved. If he is neglected now our victory will be lost.

The people of the United States since 1776 have applied in their daily lives certain fundamental principles that we speak of as the Principles of Democracy —however, men are born with different capacities—all of us do not experience the same good fortune in life, but emphasis has been placed upon the worth and integrity of the individual and upon his contribution to the welfare of the nation as a whole.

THERE are about 41,000,000 children in the nation today under 18 years of age. This is about forty percent of the population — each of these children needs help in his preparation for life, and each offers a challenge to all who are interested in his problems. Every year about 2,000,000 babies are born. This group holds the destiny of tomorrow's America. Their welfare means everything to us as citizens, parents, and individuals. The entire life of the child centers in the home and a happy home life is the greatest birthright a child can have. Self-reliance, contentment, cooperation are the natural out-growths of a secure home environment. We hear much these days about security. The growing child must feel secure in his place in the home. He must feel that he is wanted and that he is loved. Here, then in the home we have the threshold of Democracy.

The German child is raised with a healthy body for the sole purpose of becoming cannon fodder and dying for his country. The Japanese child is taught that dying for his country insures his place in the hereafter. The American child should be raised with a healthy body and a healthy mind to love and protect his country.

FACTORS IN HEALTH

There is a direct relationship between good clothing, proper nutrition, education and health during early life, and the ultimate development of good citizenship. Let me quote from the report of John Cudahy, former Ambassador to Belgium, on the conditions in Spain today. "It is among the children that one sees the fullest impact of short rations. Their stunted growth, retarded mental development, degeneracy and general weakness are a stigmata with which this war generation is scourged for the sins of the fathers and which will be passed on as a bitter legacy of suffering for many generations to come". Need more be said—could more be said?

During the period from 1930 to 1940 a large percentage of our population failed to get adequate housing, clothing, food and recreation. We are seeing the results, the growing children of that period are now the adults appearing as selectees before draft boards. Many of those rejected can be charged up to malnutrition during the period of growth. Taking the country as a whole this tells a story of lack of attention

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to the fundamentals of proper nutrition and health in childhood. This is followed in later life by poor mental and social adjustments to the extent that if we can give opportunity for normal growth and development, preferably through guidance in their own home groups, we will observe a decline in juvenile crime, in malnutrition and in disease. Although attendance at school is compulsory, almost a million children are not attending school. Concentration of families in defense areas has overtaxed school facilities in those districts. The trailer house has enabled migratory workers to travel with their families, but sanitation, hygiene, education and health and nutrition are at a low ebb in the trailer park areas.

The history of previous wars reveals this fact—that following the nervous strain, the improper diet and malnutrition that accompany war, tuberculosis, influenza and many other diseases spread rapidly, claiming the lives of men, women and children.

We have a war to win; we must be fit for whatever task is required of us. Every housewife can help by keeping her family's health at a high level. An ample and satisfactory diet should include for each person daily a pint of pasteurized milk for adults and a pint and a half for growing children, one egg, some meat, two cooked vegetables besides potatoes, some raw fruit or vegetable and whole grain cereal such as rolled oats, rolled wheat and whole wheat bread and a teaspoonful of cod liver oil or other fish oil in winter. This will meet the daily requirements of minerals, vitamins, proteins, fats, carbohydrates and pigments. We may take other foods to suit our tastes, but rich desserts and pastries should be taken sparingly; not that they are harmful in themselves but they are so satisfying that we will not eat sufficient amounts of the more essential foods.

The foundation for health is laid before the child is born. The expectant mother must have proper care. Most babies are well when they are born, and to keep them well is our problem. If we can get parents to realize that by the proper care in selecting a diet, they can add to the health, happiness and usefulness of their children, we will have made a good start. Since the first world war we have learned much about the food requirements of the growing child. Many children have benefitted by the application of that knowledge. Better and safer food has played a great part in the reduction of the death rate in babies in this country. More of the babies who live are in good health because they are well fed. Most of our present day babies are getting cod liver oil during the early months of life and as a result rickets is now a rare disease. They are getting orange juice and other fruit juices, thus preventing scurvy.

The benefits of good nutrition do not stop at babyhood. At all ages properly fed children tend to be taller, stronger and less susceptible to disease than the improperly fed. Children who have a proper nutritional start and who have acquired good food habits are as a rule, healthy, happy and contented and will grow into vigorous adults ready to do their part in the work of the world.

Unfortunately, while these things are known and the foods are available, many children today are undernourished—some are suffering from disease traceable directly to improper or faulty diet and food habits. They fall an easy prey to disease. These malnourished children are not always among the poor—they are found often among the well to do where proper foods are plentiful. They have candy and sweets between meals and then barely touch the food at the table. Our country can produce food enough for all needs and our job is to see that the children get it.

Numerous children have died this past winter from whooping cough, and most of these deaths could have been prevented by proper immunization. If every child was immunized for diphtheria there would be no diphtheria. Typhoid fever is another disease that can be absolutely prevented, and of course every child should be vaccinated against smallpox. If all children were immunized against these four diseases our percentage of sickness would be greatly reduced.

Let me quote from a recent speech of President Roosevelt's. He said, "All Americans want this country to be a place where children can live in safety and grow in understanding of the part they must play in the Nation's future. If anywhere in the country any child lacks opportunity for homelife, for health protection and nutrition, for education, for moral and spiritual development, the strength of the

Nation and its ability to cherish and advance the principles of democracy are thereby weakened".

Food will win the war if properly selected. It won the last war and it will win this one, but we must begin now to see that the generation on whose shoulders the post-war problems will fall are prepared in every way for the task. If we fail in this the foundation of our structure will crumble.

We must make the people realize that on the children of today rests the America of tomorrow. We are faced with food shortages and we will be faced with more. We must be ready to find substitute foods—for sugar that is easy. Most of us use too much sugar anyway, and a reduction of fifty percent in the present consumption of sugar would do us all good. But we must avert the consequences of the other war—thousands of children with nutritional edema, many crippled by vitamin deficiencies, robbed of their strength and of natural growth and development by starvation. The Children's Bureau is putting out pamphlets on nutrition which are very good and make many practical suggestions. One of them stands out in my mind. It says "better to keep them from getting sick than to try to save their lives when they are ill". Disease must be prevented and possibilities of epidemics checked. Never again must such a tragedy occur as did in the influenza epidemic of 1918. We must give thought to the problems that will arise—perhaps mass evacuation of coastal cities—and be ready to see that they are cared for. These are big problems and there is much work ahead.

ROLE OF THE PEDIATRICIAN

Our aim as pediatricians is in war the same as in times of peace. "For every child, health protection from birth through adolescence". Let us prepare our children for the problems which invariably follow war—personality disorders and anxiety neuroses are the inevitable results of the fright and insecurity fostered by a constant barrage of war news and radio broadcasts. Dr. Harry Emerson Fosdick of New York says our children are emotionally sensitized but intellectually unprepared for such experiences.

We will have contributed a firm foundation for the Democracy of the future when we strengthen the mental, physical and moral fiber of our children.

Our standard of living—the American way of life—demands that each generation be an improvement over its predecessor. The problems of peace will be no less than those of war. We have an obligation and a responsibility toward the children. They are the citizens of tomorrow. Let us devote our thought and resources toward the improvement of their future. We will thereby strengthen faith in our Democracy. This is the rightful inheritance of the next generation of children.

We are fighting again for human freedom and for the future of our children in a free world. Children must be safeguarded, and they can be safeguarded in the midst of this war, that they may live and take their parts in the solution of the problems of the future. They must be nourished, sheltered, protected so that they will be able to carry forward a just and lasting peace.

This republic sprang from a yearning for tolerance, independence and self government. The American home has developed from the search for freedom. We have faith in our children, faith that if we do our part now they will renew the living principles of Americanism and make the most of them.

We must guard children from injury in the danger zones; protect them from neglect, exploitation and undue strain. Strengthen their home life, see that their physical, mental and moral training is what it should be. We must conserve, equip and free children of every race and creed to take their part in Democracy.

I appeal to every physician left in our great commonwealth to make of himself an ambassador for child welfare, and to urge on his community the importance of seeing that no matter what else is neglected the growing child must be cared for.

First National Bank Bldg.

Invest In America!

BUY WAR SAVINGS BONDS AND STAMPS

Treatment of Some of the Common Fractures of Children*

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IN THE management of fractures in children, there are frequent cases, which after an attempted closed reduction, would, if the patient were older, require open reduction. However, it has long been known that growing bone tends to resume its normal anatomical configuration, and thus if the surgeon's efforts are combined properly with this aid, a perfect anatomical picture may result from what was in the beginning a relatively incomplete reduction. In a review and follow-up study of fractures in childhood on our Orthopaedic service at the El Paso City-County Hospital, a series of very interesting cases was found, which confirmed this statement.

It is hoped that this article will encourage conservatism in proper cases and also encourage open reduction when that method is definitely indicated.

Conservatism is indicated more in the management of certain types of fractures in children than in adults because of the following well known fact, viz., providing there will be several years before the individual's bones stop growing and providing that there is a normal rate of growth, there is a strong tendency in fractures of certain sites for bone to resume its normal shape. Since open reduction has added risk, it is always better to use closed methods if the result are apt to be just as good. Alinement, the relation of the long axis of one fragment to the long axis of the other, must be almost perfect; only a few degrees of angulation will be corrected by subsequent growth. Apposition, the relationship of the end of one fragment to the end of another, may be corrected even if there is practically none present, as for instance, if only one edge of the end of one fragment is caught on edge of the other fragment.

However, fractures immediately adjacent to or extending into a joint surface must be perfectly or nearly perfectly reduced. Supracondylar and epicondylar fractures of the elbow are good examples. These fractures should be reduced perfectly if a good result is to be expected.

The following were found to be the most common sites for fractures: fractures of the radius and ulna; fractures of the clavicle; elbow fractures; fractures of the shaft of the femur; fractures of the tibia and fibula.

FRACTURES OF THE SHAFT OF THE FEMUR

Under the age of 12, the suspension adhesive over-head traction method has been used on the affected extremity for the past fourteen years at the El Paso City-County Hospital. Good results have been obtained regardless of whether or not the fragments were reduced end on, providing the alinement was good. Shortening from over-riding of up to three-fourths inch was corrected by growth and follow-up on the average of two years later showed equal length. Normal appearance in the x-rays revealed that bone growth had also corrected the poor apposition. This method is used as follows: One or two strips of adhesive tape are applied to each side of the lower extremity after the skin has been cleaned with ether. The pieces of tape extend from the upper part of the thigh to about two inches below the sole of the foot at which end a two inch nail is fixed to the tape and a hole is cut in the tape to the proximal side of the nail. The adhesive tape strips on each side of the leg are fixed to the extremity by a three inch width of woven elastic (Ace type) bandage. The extremity is now ready for suspension traction. This is set up by means of using an over-head wood (two inches by two inches) bar which is attached to up-rights at the foot and head. A wire spreader of three inch width is hooked to the two holes in the distal ends of the adhesive traction tapes. A rope is tied to the middle of the spreader and run through a pulley attached to the over-head bar directly over the patient's hip region. The rope is then run through a pulley at the foot end of the over-head bar. The extremity

(*The material for this paper was obtained from the Orthopaedic Service of the El Paso City-County Hospital through the courtesy of Dr. A. H. Butler, Superintendent.)

is gently raised until the hip is flexed to ninety degrees and the extremity points directly to the ceiling. Sufficient weight is then attached to the end of the traction rope (sash cord) to "float" the patient's pelvis just off the bed. Usually about eight pounds of traction are required. (Figure 1a). A sheet may be folded with a narrow strip and tied around the bed over the pelvis to hold the patient on the bed, if this appears to be necessary. Fractures of the upper third of the femur can be perfectly reduced. Fractures in the middle third may not be reduced perfectly but if alinement is good and over-riding is not more than one-half inch, a good result may be anticipated. (Figures 1b, 1c, 1d, and Figure 2). Of course the fragments must be in contact and not separated by muscle or soft tissue. If on motion, the bones can be felt to rub against each other and if x-ray views in both antero-posterior, and lateral planes demonstrate good contact then muscle or soft tissue probably is not present in the fracture site.

FRACTURES OF THE RADIUS AND ULNA

Fractures involving the portions of these bones which help form joints must be perfectly

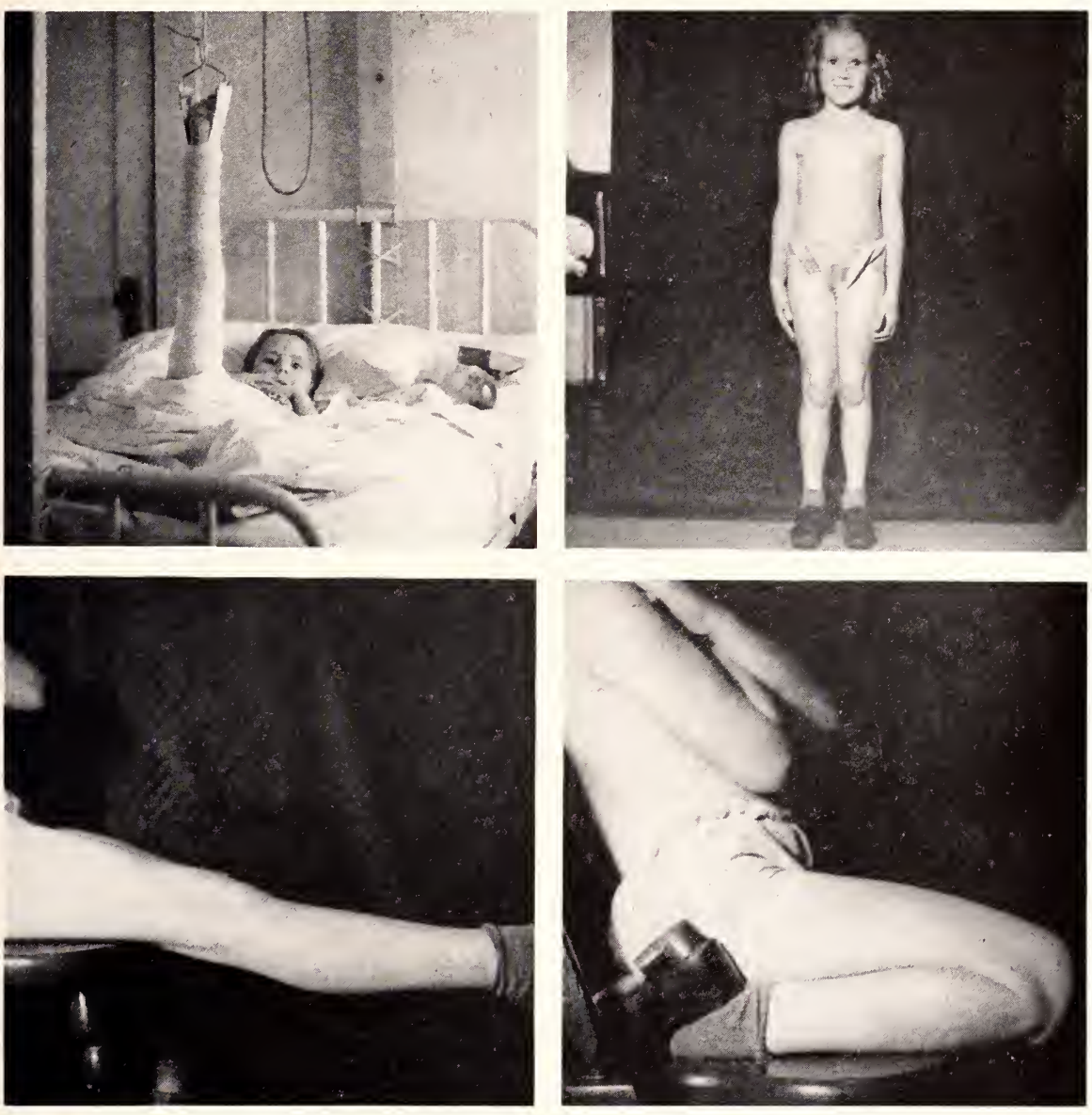

FIGURE 1: FRACTURE OF THE SHAFT OF THE FEMUR: a. (upper left) Child in bed in over-head suspension with adhesive tape traction. b. (upper right) Photograph of patient 2 years after the fracture occurred showing restoration of leg length, and no atrophy of the muscles. c. (lower left) Photograph of the patient 2 years after the fracture occurred showing normal range of extension. d. (lower right) Photograph of the patient 2 years after the fracture occurred showing normal flexion.

FIGURE 2: X-RAYS OF THE PATIENT SHOWN IN FIGURE 1 WITH A FRACTURE OF THE SHAFT OF THE FEMUR: a. (left) X-ray of reduction obtained in over-head suspension. b. (right) X-ray taken 2 years after the fracture occurred showing good alinement.

reduced. Thus open reduction may be indicated in some types of fractures; for example fractures of the olecranon with wide displacement. Fractures of the shaft need only to be brought into good alinement. Normal length should be restored by engaging the fragments end on. However, the apposition need not be restored 100%. The bone ends may be engaged only about 10% and yet a good result may occur. The x-ray in the antero-posterior view must demonstrate adequate space between the two bones. (Figures 3 and 4).

It is important to use plaster splints nearly the width of the forearm. One splint is applied posteriorly and the other is applied anteriorly both from the elbow to the base of the fingers. Ordinary bandage completes this portion of the cast. Sufficient space between the sides is left to allow for swelling and later for tightening of these splints. (Fig. 5a) A circular plaster, also padded with two layers of sheet wadding is applied in most cases and this includes the entire arm in the cast with the elbow usually fixed in flexion. However in case of posterior angulation, extension may be the best position to aid reduction. In fractures of the upper third of the radius, the forearm is immobilized in supination; in the middle third, the mid-position is the best. For fractures in the lower third, slight pronation is the optimum position. Fractures of the ulna are usually put in mid-position as regards pronation and supination of the forearm.

Separation of the distal radial epiphysis should be reduced with gentleness to avoid unnecessary damage to the epiphysis as this may produce shortening as growth takes place. Reduction should be perfect, if reduction involves too much trauma, then one-fourth inch displacement or less may be allowed.

ELBOW JOINT FRACTURES

These fractures must be accurately reduced regardless of the age of the patient. Bone growth does not tend to any great extent to improve incompletely reduced fractures in this location. Fractures into joint surfaces must have excellent position in the check-up x-ray views in order to give good function of the involved joint. If the proper manipulative procedure does not result in a good smooth joint surface and accurate reposition of fragments, then open reduction is indicated.

The most common fracture about the elbow was found to be the supracondylar type with backward and medial displacement of the distal fragment. The lower end of the proximal fragment thus may be displaced into the front part of the elbow and injure the blood vessels or nerves in that area. Reduction should be done immediately. The following procedure is usually employed. The surgeon grasps the

patient's forearm and makes traction in line with the patient's arm with the elbow flexed to about ninety degrees. The surgeon's other hand is placed at the fracture site with the thumb in front on the proximal fragment and the fingers in back on the distal one. As traction is thus made downward, the forearm is flexed gently but firmly and the distal fragment is encouraged to slip back into place. If reduction is good, the forearm will fall into full flexion easily. An assistant then holds the patient's wrist and maintains the elbow flexion. The surgeon places the heel of one hand over the medial side of the distal fragment and his other hand over the humerus and by compression reduces the displacement. A posterior moulded plaster splint is applied from the wrist, around the back of the elbow and arm and up on the shoulder. (Fig. 5b) The elbow is fixed in moderately acute flexion which however, should not obliterate the radial pulse. The correct amount of flexion is obtained by flexing the elbow to the maximum and the palpating the radial pulse. If it is obliterated the elbow should be extended until the radial pulse is full. This is then the position for fix-

FIGURE 3: PHOTOGRAPHS OF A CHILD WITH A FRACTURE OF THE FOREARM. THESE PHOTOGRAPHS WERE TAKEN 19 MONTHS AFTER THE FRACTURE OCCURRED. a. (upper left) Range of flexion. b. (upper right) Range of extension. c. (lower left) Range of pronation. d. (lower right) Range of supination.

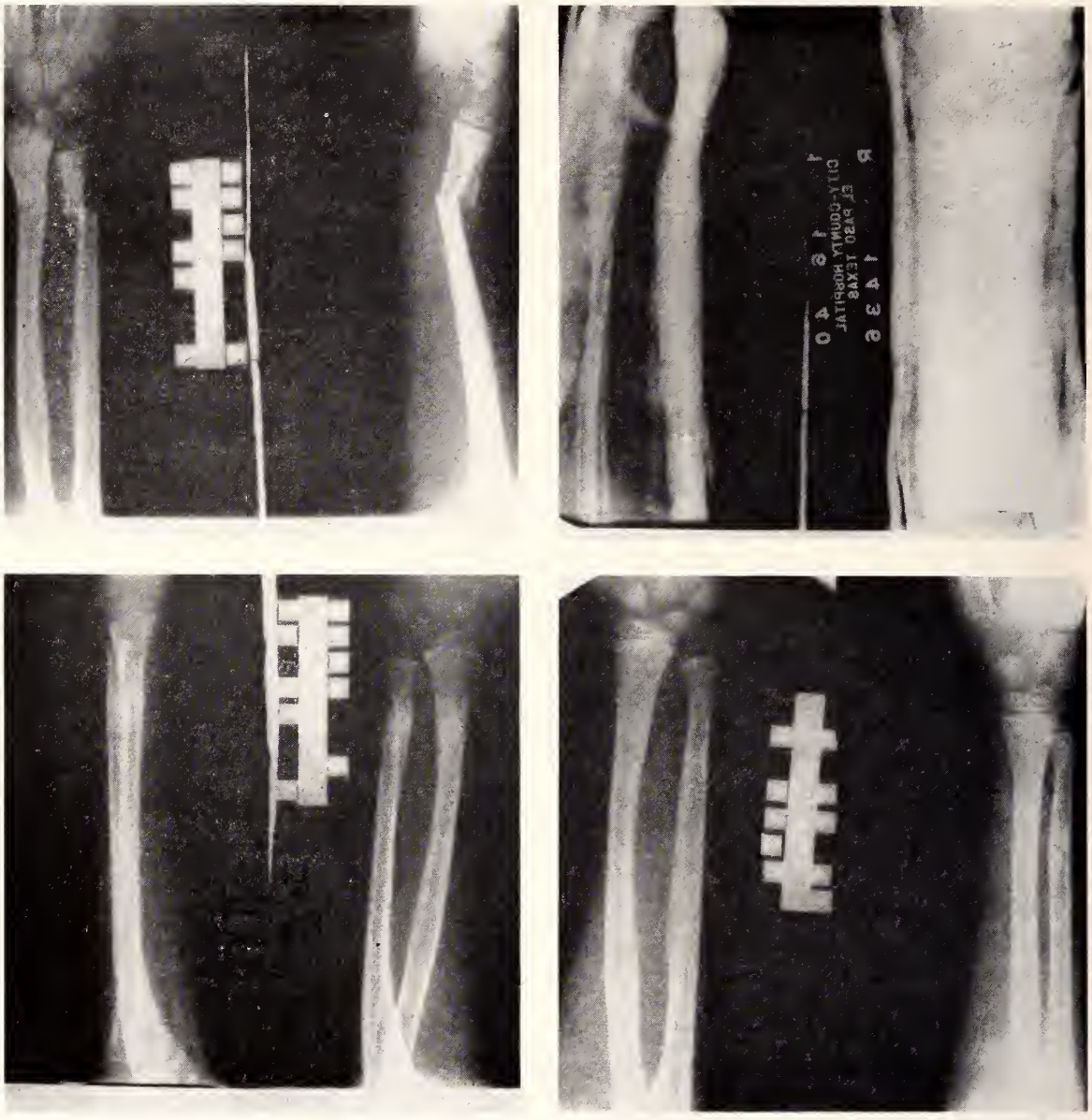

FIGURE 4: X-RAYS OF THE PATIENT ILLUSTRATED IN FIGURE 3 WITH THE FRACTURE OF BOTH BONES OF THE FOREARM: a. (upper left) X-rays before reduction. b. (upper right) X-rays taken immediately after reduction. It will be noted that this x-ray shows that the fractured ulna was not in good apposition and that the fracture was barely hooked by a corner of each fragment. c. (lower left) X-rays taken 2 months and 4 days after the fracture occurred. d. (lower right) X-rays taken 19 months after the fracture occurred. Both bones have been restored to normal.

ation. X-ray check-up while the patient is still anaesthetized should demonstrate good reduction. If it does not the manipulative procedure is repeated until the fracture is reduced. Afterwards the radial pulse should be palpated every thirty minutes and the extremity should be inspected for such signs of circulatory embarrassment as coldness, pallor, cyanosis, edema, anaesthesia, paralysis, and contraction of the fingers. Should these signs occur or should the radial pulse become obliterated the degree of flexion should be reduced and the bandage should be loosened. If no improvement occurs, an incision into the deep fascia in front of the elbow, with exploration of the brachial artery may be necessary, and should be done without hesitation if indicated.

FRACTURES OF THE CLAVICLE

At the El Paso City-County Hospital for economic reasons x-rays are not always used in the management of fractures of this bone in children. The bone is subcutaneous and the deformity can be easily palpated. In young children a "figure of eight" bandage is used,

This is merely a two inch width flannel strip about three yards long. A felt pad two inches wide and long enough to extend over top and around the front of the shoulder joint to the back of the arm pit, is put into position on each shoulder. The surgeon then puts the first bandage on beginning posteriorly at the spine and winding first around the shoulder of the injured side then winding in the opposite direction around the other shoulder. The ends of the bandage are pulled taut while the surgeon steadies the patient with his knee against the patient's back. Several layers of this bandage are applied with increased tightening of each successive layer. The completed bandage when viewed from behind, forms a figure of eight horizontally. (Fig. 5e) Palpation of the involved clavicle will demonstrate proper alinement, and proper restoration of length. Perfect apposition is not necessary. In older children the "T" splint alone usually gives a satisfactory reduction.

If the clavicle cannot be properly reduced by these methods, as may be the case in older

FIGURE 5: SHOWING METHODS OF RETENTION OF VARIOUS TYPES OF FRACTURES IN CHILDREN: a. (upper left) Anterior and posterior moulded plaster of paris splints used in fractures of the forearm, which allow for expansion from swelling and in which the 2 pieces of plaster do not come together so that they may be tightened when the swelling decreases. b. (upper right) Posterior moulded splint used in supra-condylar fractures of elbow. c. (lower left) Figure of eight bandage made of flannel used for the treatment of fractures of the clavicle in small children. d. (lower right) Cast used in the treatment of fractures of the tibia.

children, the "T" splint may be used in the following manner. A padded cast is applied about the body from the iliac crests up over the good shoulder, leaving the arms and injured shoulder free. The "T" splint is incorporated posteriorly and the arm of this splint is so fixed that it is one inch above the shoulder's normal position and extends out beyond the injured side. After the cast has become hard, bandage may be placed around the arm of the "T" splint and the shoulder of the injjured side so as to draw this end of the fractured clavicle, upwards, backwards and slightly outwards. Restoration of proper length and good alinement thus easily results.

All of these cases of fractures of the clavicle are readjusted every few days for three weeks, after that, weekly visits are sufficient. The fractures are usually solidly healed in six weeks. A sling for the extremity of the injured side is routinely used also.

No record of open reduction of fractures of the clavicle in childhood were found at the El Paso City-County Hospital. In fact local anaesthesia was not necessary.

FRACTURES OF THE TIBIA AND FIBULA

Fractures in this region were usually incomplete and the fragments were in good position. For these a padded cast was applied from the upper thigh to the toes with the foot in mid-position and the knee flexed about thirty degrees. (Fig. 5d).

For those with angulation but end-on position, the same procedure was used. Either the alinement was restored by manipulation before the cast was applied or later wedged for correction. In this procedure, a circular cut is easily made in the freshly set cast at the level of the fracture site and opposite to the direction of point of angulation. The cut edges are separated until the angulation is obliterated. Wooden blocks are used to maintain the separation and plaster is applied over the wedged area to give permanent fixation.

Compound fractures are in almost all cases operated upon and reduced as soon as the patient's general condition will permit. If the fragments tend to slip internal fixation is used usually in the form of vitallium plates or screws. Should infection then occur, internal fixation helps maintain position; frequent changes of casts and other local treatment can be actively carried out without fear of displacing the fracture. The compound wounds are closed without drainage, after a careful debridement has been carried out and after equal parts of powdered sulfanilamide and sulfathiazol have been placed in the wound.

In summary:

The management of some of the common fractures in children has been outlined.

Conservative and operative management and the indications for each have been discussed.

In general fractures in children may be treated non-operatively much more frequently than in adults. A plea is made for conservatism.

In fractures of the shafts of the long bones, the alinement and restoration of the end-on position are important. Poor apposition does not necessarily prevent the attainment of a perfect result.

Certain fractures must be operated upon in almost all instances. In these fractures conservatism is not applicable.

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AMERICA AT WAR

RELATION OF EMERGENCY MEDICAL SERVICES TO INDUSTRIAL PLANTS

The primary responsibility for the protection of industrial plants rests upon the operators, owners, and local and State governments. The War and Navy Departments have included in their protective program the responsibility for surveying and recommending protection within certain civilian manufacturing plants engaged in the porduction of war material, as well as for plants owned and operated by the War and Navy Departments. The Emergency Medical Service, provided in these plants and in all other plants, should be closely integrated with the local Emergency Medical Service. The War and Navy Departments have requested all civilian manufacturing plants engaged in the production of war to cooperate with the local Emergency Medical Service of the U. S. Office of Civilian Defense. All local Chiefs of Emergency Medical Service should be prepared to cooperate with the management of plants having important War and Navy contracts whenever requested by responsible officials within the plants to do so.

All industrial plants are expected to provide medical services and First Aid equipment within the plant for the care of the injured. In the event of enemy action directed against such industrial plants, the physicians, nurses, and first aid detachments within the plants may be inadequate to care for the serious injuries produced by high explosives or incendiaries. It is the recommendation of the U. S. Office of Civilian Defense that each industrial plant, in addition to providing its own medical staff and first aid equipment, should plan in collaboration with the Chief of Emergency Medical Services of the locality for

(1) Services of ambulances and Emergency Medical Field Units when needed.

(2) Available beds at one or more hospitals to which the severe casualties may be transported.

(3) The establishment of a Casualty Station of the Emergency Medical Service within a short distance of the plant.

(4) Obtaining the services of Emergency Medical Field Units if needed to supplement the plant medical service during an emergency.

In view of the fact that enemy action against industrial plants may be coincidental with widespread damage to the adjacent community, the mobilization of civilian medical resources during an emergency will be accomplished through the Commander of the Citizens' Defense Corps.

If a plant is miles from a hospital and there is, therefore, a possibility that the injured might be obliged to remain at the Casualty Station for many hours before being transferred to the hospital, the Casualty Station should be larger than the average for a given number of employees and be adequately equipped. It must have cots, blankets, water, heating facilities, and be equipped at least with the emergency medical supplies outlined in Medical Division Bulletin No. 2, equipment lists 1 and 2.

PROTECTION AGAINST GAS

War gases stay close to the ground, for they are heavier than air. To get out of a gassed area, simply walk against the wind or go upstairs.

Gas is irritating and annoying to the eyes, nose, lungs and skin, but it is usually harmless if you do not become panicky but promptly leave the gas area and cleanse yourself. A soldier must put on a mask where it is necessary to remain in the contaminated area, but a civilian can go up on the second or third floor and literally ignore it, if the windows are kept closed.

If the gas should get on your skin, you can prevent it from doing much harm by sponging it off as quickly as possible with a piece of cloth, such as a handkerchief, and applying some neutralizing substance, followed by a thorough bath, preferably a shower, with common laundry soap and water.

If you are indoors, stay there with doors and windows closed, and go up to the second or third story. Stay out of basements. Turn off air-conditioning equipment, and stop up fireplaces and any other large openings.

Some gases are spread as oily droplets, which blister and burn the skin and eyes. If you are

outside when gas is used do not look up. Tear off a piece of clothing or use a handkerchief to blot any drops of liquid from your skin and throw the contaminated cloth away. Blot; do not rub, as rubbing will spread the liquid. Then go home, if it is nearby, or to the nearest place where you can wash immediately with soap and water and cleanse yourself in the following manner:

(1) Remove all outer clothing outside the house, since gas can be transmitted to others from contaminated clothing. Put it preferably in a covered garbage pail.

(2) Apply one of the following effective household remedies to the part of your skin that has been contaminated: Chlorox or a similar household bleach (for mustard gas); peroxide of hydrogen (for Lewisite); a paste or a 2 per cent solution of baking soda (one tablespoonful to a quart of water), if you have no bleach or peroxide. If you do not know the gas, use both bleach and peroxide. Keep the bleach and the peroxide out of the eyes. *Do not waste time looking for these remedies:* bathe *immediately* if they are not at hand.

(3) After entering the house, wash the bleach or peroxide from the hands with laundry soap and water and then wash the face. Remove the underclothing, place it in a covered garbage pail and enter the bathroom.

(4) Irrigate the eyes with large amounts of a luke-warm 2 per cent solution of baking soda (one tablespoonful to a quart of water), or else with plain water. Use an ordinary douche bag or an eye irrigator. If you do not have these, let plain warm water pour into the eyes from the shower, washing them thoroughly. Do not press or rub the eyes.

(5) Lastly, take a shower, using laundry soap and hot water.

(6) If the nose and throat feel irritated, wash them out with the baking soda solution.

(7) If the chest feels heavy and oppressed, if you have any trouble breathing or if cigarette smoke becomes distasteful, lie down and stay perfectly still until a physician sees you.

(8) If blisters develop, be careful not to break them and call a physician.

Remember:

Soldiers require gas masks because they must remain in the contaminated area. Civilians can get out of the gassed area or get above the level of the gas, where they do not need gas masks or protective clothing.

Injured persons who are gassed require decontamination before they can be admitted to hospitals. All other civilians can best prevent any serious injury by promptly helping themselves in the manner outlined, using a kitchen or bathroom, laundry soap and water, and a few materials found in every household.

SMOKING IN WARTIME

An interesting sidelight on the subject *Smoking in Wartime* has been recently thrown on the opinion of Gene Tunney, former heavyweight boxing champion, now in charge of the physical fitness program of the Navy. Regarding smoking, Dr. Louis E. Bisch, A.B., M.D., Ph.D. (Columbia University), a neurologist, has answered Mr. Tunney in defense of the habit in war time.

Mr. Tunney has followed the orthodox line of argument. Dr. Bisch has confined his arguments to wartime needs and conditions. The following excerpts from his answer are interesting if not convincing, since they appear in a popular weekly and are apparently not being ignored by the tobacco interests.

"The Lieutenant Commander (Tunney) apparently is not aware that we are fighting for the American Way of Life—not for a World's Series or a Heavyweight Championship. * * * Our boys are being conditioned for *war,* and in the last analysis they need mental conditioning as badly as they need the physical. They must be alert as well as strong. Mechanized war, the aeroplane, and the parachute require brains and coordination and a preponderance of superior equipment, even more than supermen of the muscular type.

"I have often heard American officers say soldiers are satisfied as long as they have food and cigarettes. Bataan's defenders had neither.

"There is a mental side to smoking which nobody should forget. MacArthur, in a recent conference in Australia, smoked five cigarettes in an hour and a half. President Roosevelt, Winston Churchill, Donald Nelson, Cordell Hull, General Knudsen, Admiral Hart, Chiang Kai-shek, Sir Stafford Cripps all smoke regularly. Incidentally, Hitler, Mussolini and Hirohito do not."—J. Med. Soc. N. J.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY

(L. B. Cohenour, Associate Editor)

60th ANNUAL SESSION OF THE NEW MEXICO MEDICAL SOCIETY

Santa Fe, N. M., June 25-27, 1942.

A Preliminary Report

The registration was large considering conditions and the attendance an agreeable surprise to the officers of the Society. With many of the members serving in the armed forces, it was feared there might be a mere corporal's guard present, but with a registration of 86, and others not registered, the assembly hall was well-filled at all scientific sessions.

Hats off and bows to Doctor A. S. Lathrop, Chairman of the Scientific Program Committee, and to the other members of the Committee, Doctors R. O. Brown, V. E. Berchtold and LeGrande Ward, for the very fine well-balanced program provided, with excellent papers and lectures by men of high standing in the profession:

To the Social and Entertainment Committee, Doctor V. E. Berchtold, Chairman, Doctors H. A. Alexander and LeGrande Ward, members, for the wholehearted welcome extended to the visiting Doctors and for their unremitting and very successful efforts to furnish entertainment and enjoyment for all, and

To the Committee on Arrangements, Doctor P. L. Travers, Chairman; Doctors D. B. Williams and Molly H. Radford, and

To the Ladies Auxiliary Committee, Mrs. R. O. Brown, Chairwoman, and Wives of Physicians of Santa Fe, for the excellent accommodations and personal solicitude and hospitality to all visiting members.

Also to Doctor and Mrs. H. D. Corbusier for the courtesies extended at their home on the Old Santa Fe Trail.

And hats off and bows to:

Doctor D. F. Monaco, Doctor M. K. Wylder, Doctor R. O. Brown, Doctor C. H. Gellenthien and others, who deplored the lack of unity within the ranks of the Society and arose to the defense of Doctor L. B. Cohenour for his unselfish and untiring efforts for many years on behalf of the Society, and his conscientious fulfillment of his duties as State Representative for the Federal Procurement and Assignment Service—a patriotic service requiring much personal sacrifice without compensation. As Drew Pearson and Bob Allen in their Washington Merry Go Round Column so aptly term Selective Draft Board Members the unsung heroes of this war, so should be included the members of the Procurement and Assignment Service for the loyal service being rendered without recompense save criticism and abuse from some of rank and file; whose attitude suggests "Yes, we must win the war—but let George do it."

Doctor Carl Mulky, President of the Society, in speaking of the Rocky Mountain Medical Conference, comprising the States of Colorado, Utah, Wyoming, New Mexico and Montana, stated that plans were going ahead for the meeting next year which would be held at Albuquerque in May, but he thought it quite possible that all meetings and conventions will be called off next year on account of travel restrictions.*

Mr. Harvey T. Sethman, Denver, Colo., presented a very clear, comprehensive and interesting talk on the "Procurement and Assignment Service", clearing up many points which were not clear in the minds of the Doctors.

During the course of the meeting Doctors C. S. Stone of Hobbs and William A. Glasier of Carlsbad were delivered commissions of

*Ed. Since this report was written, the 1943 session of the Rocky Mountain Medical Conference has been cancelled.

Captain in the Medical Corps U. S. A., by Lieut. Col. Lane B. Cooke, Albuquerque medical recruiting officer.

In his opening address, President-Elect Martin of Clovis, dismissed any discussion of scientific features, and restricted his remarks to various problems confronting the medical profession and emphasized the importance of the ever annually neglected Legislative and Public Relations Policies of the Society.

BUSINESS TRANSACTED

New Members Admitted:

Doctor Vivian E. Franklin (Socorro).

Doctor Thomas B. Williams (Hot Springs).

Doctor John T. Lowrey (Alamogordo).

Doctor H. E. Bielinski (Vaughn).

Doctor W. E. Huddleston (Le Roy).

Doctor John W. Elder (Application for honorary membership — accepted until such time as Doctor Elder may return to active practice for a period of three months or more).

Motions Presented and Passed:

1. That the sum of $500.00 be donated to the Basic Science Board from funds of the Legislative Committee.

2. That the Committee on Resolutions draw up a suitable Resolution covering the discussion of annual registration; that the annual registration fee shall be $2.00.

3. That Section 5, Chapter 5 of the By-Laws be amended, by the addition—"No member shall hold the elective office of President, Vice-President, or Secretary-Treasurer, who is in full-time employment of the State or Federal Government, but this does not refer to men in the armed services of the United States."

4. That the House of Delegates extend to the Surgeon General of the Army a Resolution of thanks for the establishment of a Federal Hospital in Santa Fe and that the exact wording of the Resolution be left to the Secretary.

5. That the action of the Quay County Medical Society in connection with the management of the Hospital at Tucumcari be endorsed by this Society and the Secretary send a copy of such endorsement to the County Society.

6. That the action taken by the House of Delegates at the Annual Meeting in 1941, "that in those cases which are under the supervision or investigation of the New Mexico Department of Public Welfare, the membership of this Society give necessary medical care without fees from that Department, "be rescinded.

RESOLUTIONS ADOPTED

1. WHEREAS, God in his inscrutable wisdom has seen fit to call from service on earth to service in his own Kingdom

Doctor L. S. Peters
Doctor J. T. Conditt
Doctor A. H. Mann
Doctor G. L. Herman

and

WHEREAS the New Mexico Medical Society grievously feels the loss of those members:

THEREFORE BE IT RESOLVED That this Society express its sincere regrets and extend its sympathies to the families of the deceased.

BE IT FURTHER RESOLVED That this Resolution be incorporated in the minutes of the Society and copies thereof be sent to the families of the deceased members.

2. WHEREAS The New Mexico Medical Society is completing its three-day annual convention in the City of Sante Fe:

WHEREAS it has during the brief stay been the recipient of many and extended courtesies and entertainments:

NOW THEREFORE BE IT RESOLVED That: The New Mexico Medical Society extend its whole-hearted thanks to the Santa Fe County Medical Society for this beneficial and enjoyable meeting, AND

BE IT FURTHER RESOLVED That this Resolution be incorporated in the minutes of the Society and a copy be sent to the Secretary of the Santa Fe County Medical Society.

3. WHEREAS The Sixtieth Annual Meeting of the New Mexico Medical Society has been characterized not only by a thorough scientific program of great worth but likewise by outstanding social enjoyment:

WHEREAS each member of the New Mexico Medical Society appreciates the efforts of the ladies in making a success of this meeting:

NOW AND THEREFORE BE IT RESOLVED That the New Mexico Medical Society express its whole-hearted appreciation and thanks to the ladies of the Santa Fe County Medical Society for their unremitting efforts to the success of this meeting.

4. BE IT RESOLVED That the Committee on Public Policy and Legislation be instructed to formulate and attempt to secure

the passage of a Bill to set up an annual registration of medical practitioners at a fee of two (2) dollars annually, and that the money received from this registration be placed in a fund for the operation of this law and for the prosecution of illegal practitioners.

5. WHEREAS, The members of the New Mexico Medical Society enjoyed the splendid hospitality of Doctor and Mrs. Harold D. Corbusier:

THEREFORE BE IT RESOLVED That the New Mexico Medical Society extend its thanks to Doctor and Mrs. Corbusier and that this Resolution be incorporated in the minutes of the Society and that a copy be sent to Doctor and Mrs. Harold D. Corbusier.

(Signed)

A. S. Lathrop, M. D.
Steven Marshall, M. D.
Carl Mulky, M. D.
Committee on Resolutions.

ANNUAL REPORT OF MEMBERSHIP

June 25, 1942.

House of Delegates:

Gentlemen:

I hereby render a report of the affairs of this office of Secretary-Treasurer for the term ending with this session.

Members in the Society at this time, are as follows:

	1941	1942
Bernalillo County	57	53
Chaves County	19	18
Colfax County	14	13
Curry County	15	11
Dona-Ana County	11	11
Eddy County	17	23
Grant County	12	11
Luna County	6	4
Lea County	8	8
McKinley County	12	10
Quay County	5	5
San Miguel County	11	9
Taos County	3	5
Union County	5	5
Santa Fe County	22	20
Member-at-large	22	25

Total in good standing at this date—232.

Six applications for membership were received to be presented at this meeting and to be acted upon by the council.

Four deaths of members of the Society: L. S. Peters, Dec. 17, 1941, Albuquerque; J. T. Conditt, May 25, 1941, Hagerman; A. H. Mann, Nov. 2, 1941, Tucson, Arizona and G. L. Herman, Jan. 25, 1941, of Socorro.

Respectfully submitted,

(Signed)

L. B. Cohenour, M. D.
Sec.-Treasurer.

ANNUAL REPORT OF FINANCES

June 25, 1942.

Council New Mexico Medical Society:

Gentlemen:

I hereby submit a report of the financial affairs of the New Mexico Medical Society, ending this date:

Balance on hand at annual report May 26, 1941	$2,127.69
Delinquent dues collected from 20 members	200.00
Annual dues collected from 232 members for 1942	2,320.00
Total cash received to May 25, 1942	$4,647.69

DISBURSEMENTS

Reporter for 1941 meeting, balance of one-half fee	87.50
Secretary's salary for 1941-42	300.00
Treasurer's Bond for 1941-1942 (Clinton P. Anderson)	5.00
Dr. R. O. Brown, Legislative funds for 151 members @ $5.00	755.00
Southwestern Medicine for 151 members at $2.00	302.00
Strong's Book Store—supplies	2.60
DeVeau Typewriter Co., Ribbons, supplies and over-hauling of typewriter	18.61
Walsh Printing Co.—Stationery supplies	31.65
R. O. Brown—outstanding expenses	125.07
Postmaster—Stamps and envelopes 3c	20.98
Investigating Committee Basic Science	250.00
Reporter for 1942 meeting, one-half fee	87.50
Total expenses	$1,965.91
Balance on hand	$2,656.78

OUTSTANDING INDEBTEDNESS

Secretary's salary for 1942-1943	300.00
Reporter for 1942 meeting, balance in full	87.50
Treasurer's Bond for 1942-1943	5.00
Southwestern Medicine for 101 members	202.00
R. O. Brown, Legislative dues for 101 members @ $5.00	$505.00
Approximate total indebtedness	$1,099.50
Expected balance after all bills are paid	$1,567.10

Respectfully submitted,

(Signed)

L. B. Cohenour, M. D.
Sec.-Treasurer.

ELECTION OF OFFICERS

President-Elect—Dr. J. E. J. Harris, Albuquerque.

Vice-President—Doctor Carl H. Gellenthien, Valmora.

Secretary-Treasurer—Doctor L. B. Cohenour, Albuquerque (Re-elected).

Councillors for Three Years—Doctor H. A. Miller, Clovis; Doctor R. L. Bradley, Roswell (Re-elected).

Councillor for One Year—Doctor Carl Mulky, Albuquerque.

Delegate to A. M. A.—Doctor H. A. Miller, Clovis.

Meeting Place 1943—Albuquerque.

Board of Managers, Southwestern Medicine:
(Appointed by the Council)—
Doctor W. B. Cantrell, Gallup
Doctor M. K. Wylder, Albuquerque
(Re-appointed)

REGISTRATIONS

Among those registered were:

Adler, Stuart W., Santa Fe
Alexander, H. A. (and wife), Santa Fe
Bradley, R. L., Roswell
Brown, O. E., Tucumcari
Brown, Robert O., (and wife) Santa Fe

Berchtold, V. E (and wife , Santa Fe
Barton, W. C., Santa Fe
Basom, W. Compere (and wife , El Paso, Texas
Bearn, W. P., Santa Fe
Bomar, Ralph, Santa Fe
Burton, S. L., Albuquerque
Cohenour, L. B., Albuquerque
Corbusier, Harold D., Santa Fe
Cunningham, T. D., Denver, Colo.
Cornish, P. G., Albuquerque
Cantrell, W. B., Gallup
Campbell, Nancy D., Santa Fe
Duggan, LeRoy B , U. S. Navy
Diver, F. C., Raton
Davis, Col. J. Haywood (and wife)
Dellinger, A. H. (and wife , Las Vegas
Douthirt, C. H., Santa Fe
Elliott, Cary B., Raton
Egenhofer, A. W. (and wife), Santa Fe
Ebaugh, Franklin G. (and wife), Denver, Colo.
Elliott, L. F., Albuquerque
Foster, L. G. (and wife), Silver City
Foster, Joseph, Santa Fe
Frisbie, Evelyn F., Albuquerque
Glasier, William F., Carlsbad
Glasier, William A (and wife), Carlsbad
Gellenthien, C. H., Valmora
Hale, Thomos, Jr., Taos
Hart, George W., Albuquerque
Hannett, J. W., Albuquerque
Harris, J. E. J. (and wife , Albuquerque
Heusenkveld, Gerrett, Denver
Haggart, W. W. (and wife), Denver
Hargis W. C., Lieut. Col., Santa Fe
Hendricks, J. W., Santa Fe
Johnson, J. J., Las Vegas
Johnson, Lionel W., Roswell
Kaser, W. E., Las Vegas
Lovelace, W. R , Albuquerque
Lingenfelter, G. P. (and wife), Denver
Lander, E. W. (and wife)), Roswell
La Paz, F. Torres Braemonte, Bolivia
Lathrop, A. S. (and wife), Santa Fe
Monaco, D. F. (and wife), Gallup
Maloney, David, Hartford, Conn.
Mera, F. E., Santa Fe
Moynihan, Pat Denver, Colo.
McIntyre, E. F., Santa Fe
Miller, C. A., Las Cruces
Miller, H. A (and wife), Clovis
Morgan, A. L. (and wife), Hobbs
Martin, Wallace P., Clovis
Marshall, J. S. (and wife), Roswell
Mitchell, John C., Silver City
Mulky, Carl (and wife), Albuquerque
Nesbit, O. I., Espanola
Pond, Ashley, Taos
Packard, Robert, Denver
Rodgers, H. E., Albuquerque
Radford, Malloy, Santa Fe
Rudin, Harry N., Santa Fe Indian Hospital
Rife, D. W., Santa Fe
Stone, C. S. (and wife), Hobbs
Stevens, B. F., El Paso, Texas
Simms, Eugene P., Alamogordo
Sethman, Harvey T. (and wife), Denver
Shawraft, W. A. (and wife), Hurley
Scott, James R. (and wife), Santa Fe
Stahl, Nicholas M., Santa Fe Indian Hospital
Thaxton, W. M., Tucumcari
Terrell, Allen P., Hobbs
Thompson, L. A., Springer
Thorpe, B. B., Artesia
Travers, P. P. (and wife), Santa Fe
Tucker, G. E., Anthony
Walker, P. B., Denver
Ward, E. L. (and wife), Santa Fe
Williams, D. B., Santa Fe
Waggaman, R. T., Roswell
Wylder, M. K., Albuquerque
Wittwer, W. F. (and wife), Los Lunas

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

The semi-annual business session of the El Paso County Medical Society, presided over by Dr. F. O. Barrett, President, was held May 25, 1942 in the Tea Room of the Cortez Hotel.

A report of the State Medical meeting was made by our delegate, Dr. Dutton. He reported that a resolution was introduced by Dr. Bob Homan as follows: That the Texas Medical Association recommend to the Board of Regents of the State University that an administrator be selected to reorganize the faculty of the University. This was passed.

A resolution for the suspension of State dues for men in the military service was tabled, however, a later recommendation states that nobody will be suspended for non-payment of dues.

Dr. Bob Homan was elected vice-president of the State Society.

The following report was made by Dr. Bob Homan: 1. The committee on Maternal and Child Health is sponsoring a program to better train mid-wives in the state of Texas. This will be under the guidance of the County Health Units. 2. A Unit from the State Medical Association was working on changes in the Licensure Law. 3. Procurement and Assignment for Military Service. Each state now has a recruiting committee consisting of three officers and two clerks. The office of this committee is now located in the office of the State Medical Association, Fort Worth, Texas. This committee and The Procurement Committee will be backed up by the Draft Board. It is expected that 1,500 physicians, or 1-3 of the membership of the State Medical Association will be in the armed forces. Dr. Holman Taylor is the chairman of the Procurement and Assignment Committee. The former Military Affairs Committee of our Society is now the new Procurement and Assignment Committee.

Dr. McCamant reported that Col. J. J. O'Reilly is the Chairman of the Recruiting Board for Texas. Any man up to the age of 55 may apply for active duty. Aliens may get a commission if they have a state license.

A report of the Advisory Committee to the School Board was made by Dr. Rheinheimer. He said the committee had done very commendable work and made an appeal for more complete examinations.

Dr. Prothro spoke of the T. B. situation in El Paso. He said that we now have a full time nurse for T. B. work. Also that an effort is being made to open new beds in the City-County Hospital.

Dr. Barrett read a letter from the Board of Health requesting a special committee to work

with them. The following committee was appointed: Dr. Vandever, Chairman, Dr. Earl Rogers, Dr. Dutton and Dr. Mott Rawlings.

Dr. Egbert reported for the Board of Censors. He said it was the decision of this Board that no Jap citizens or aliens be accepted for membership for the duration of the war. Dr. Gorman moved and Dr. McCamant seconded that this report be accepted. Unanimously carried.

—Chas. F. Rennick, Secretary.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

The regular Staff Meeting of St. Joseph's Hospital, Phoenix, was held on July 13th, at 8:00 P. M.

The Statistics for the months of May and June were read by Dr. Howard Patt.

The CLINICAL PROGRAM follows:

I. ABSCESS OF THE BRAIN

Case No. 17782—with the history, physical findings, and pathological report, by Dr. W. H. Woern

Case No. 61453—with history, physical findings, and pathological report, by Dr. A. C. Kingsley

Summary of the Records of Brain Abscess in the Hospital during the past five years, by Dr. W. W. Merrill

II. DEMONSTRATION OF ROGER ANDERSON FRACTURE REDUCTION by Dr. R. S. Haines

III. CYSTIC KIDNEY

Case No. 59455—with history and clinical course, by Dr. P. T. Brown

Pathological report, Dr. O. O. Williams

Discussion of Cystic Kidneys with Review of Hospital Records by Dr. J. W. Pennington.

—*C. N. Ploussard, Sec't'y of Staff.*

MISCELLANY

MEDICAL ETHICS

We may legalize the philosophy of a falsely conceived democracy which has a tendency to reduce everything to a common level by insisting that all forms of work no matter what they be have the same social significance but our own common sense will still tell us that when I place my life in the hands of a physician, I am doing something quite different than when I sign my name to a deed for a piece of property or when I buy the gasoline for my Sunday's outing. Of course, all forms of work are honorable, all forms of work have a social value, all forms of work can make or mar human happiness, but the physician, despite any court decision to the contrary, undertakes a responsibility for me which is an individual responsibility and which is more akin to the responsibility of a mother's love for her child than it is to the attraction of a magnet to a piece of steel; more akin to the communication of knowledge by the teacher to her pupils than it is to the typesetting of the linotyper; more akin to the creative work of a Michelangelo, a Shakespeare or a Beethoven than it is to the advertising of a soft drink. Democracy in its highest concepts does not mean a levelling in knowledge or responsibility or in social function but it means the dedication of the individual's highest capacity to the common good and that dedication is a responsibility which implies self-forgetfulness, absorption in the highest purposes of living, a vision of the implications and consequences of the modification of a human life.

Of course, Mr. Arnold is not alone in his thinking. There are enough other schools of thought that have taken it upon themselves to tell the physician that he is little more than a technician who by mere accident deals with protoplasm in place of putty, with nerves in place of wires, and with eyes and ears in place of photographic plates and sound amplifiers. Medical ethics in a certain very popular school of thought headed by those whose names we need not mention, has been identified with medical economics. The criterion of judgment of the doctor as a professional man is no longer his internal satisfaction that he derives from the saving of human lives, it is the satisfaction which he derives from his bank book; no longer the gratification that he has snatched the cold hand of death from the throat of a hemorrhaging mother whose children clamor for her affection, but rather the fact that he has placed the hand of a possessor upon new acreage in which he is to gratify his sense of domination. If medicine were to follow such dictates, the poor might starve and the sick might die with

little more social effect than might ensue from the running down of a boiler by reason of the lack of fuel or the cessation of the brine pump in a refrigerator. Such a philosophy tears down the dignity of a human being, equalizes the sacred service of dedication to humanity and the prosecution of financial gain and throws into the same average, the intangibles of dedication to a cause with the expenditure of so many foot-pounds of energy derived from the burning of a gallon of gasoline.

Our minds rebel against such thinking and no matter what the legal sophistries might be upon which such figmental structures are built, the facts still remaiin that the human being knows that he is exposed to dangers of life and limb, to dangers to his mental sanity and his physical well being and that there is one and only one, his physician, who in the whole range of human employment and occupation can serve him in the preservation of life and life's health. Of course, if we regard the individual merely as a creature of the state and as a slave of the state, then we can attach a monetary value to the functions of the slave, but if we regard the state as the servant of man, then the value of the human life and human well being must increase in proportion to the value which we set upon man, for whom government is the expression of man's own value of the environment within which he seeks to achieve the realization of his legitimate hopes and ambitions.

And therein lies the importance of professional ethics. It is scarcely ten years ago that the writer of the Majority Report of the Committee on the Costs of Medical Care insisted that the responsibility of the physician for his patient is nothing more than the responsibility of one human being towards another in any one of the millions of possible human inter-relationships; that there is no difference between the medical service of the physician involving as it does at times, all phases of personal and family life, inclusive of economic, financial, social, psychological and religious conditions, together with the products of character and personality and the service which is rendered to the human being through the agency of commerce and industry. How strange those words sound to us after the lapse of even so short a period as one decade, when one contemplates the change in attitude that has been literally forced upon us

SMITH-DORSEY

Solution of Estrogenic Substances (in Peanut Oil)

Mercy walked with the discovery of the remedial action of estrogenic substances. It walks today . . . where carefully regulated laboratories produce and distribute these products . . . And most of all, where competent physicians—alert to symptoms—administer estrogens for these various conditions: natural and artificial menopause, gonorrheal vaginitis in children, kraurosis vulvae, pruritis vulvae. . .

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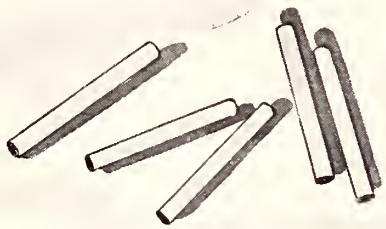

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
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BOOK NOTES

L. O. DUTTON, M. D.
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SYNOPSIS OF MATERIA MEDICA, TOXICOLOGY, AND PHARMACOLOGY, by Forrest Ramon Davison, B.A., M.Sc., Ph.D., M.B.—Medical Department, The Upjohn Co., Kalamazoo, Mich. Formerly Assistant Professor of Pharmacology in the School of Medicine, University of Arkansas, Little Rock. C. V. Mosby Co., St. Louis.

The second edition of this valuable handbook contains a wealth of information systematically presented and covers much that is essential for the student and the practicing physician in compact form. Much of the material is presented in the classical form, but the volume is not burdensome nor is it a mass of theoretical material from which the practical must be sifted.

Of particular value are the large number of prescriptions which are scattered throughout the book. This should considerably stimulate the rapidly waning art of prescription writing. The drugs selected for discussion are all of practical value and little is included which is not useful. This book can be highly recommended as a clear practical guide for the student and as a valuable reference for the physician.—*L. O. Dutton.*

COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION, Edited by Richard M. Hewlitt, B.A., M.A., M.D.; A. B. Nevling, M.D.; John R. Miner, B.A., Sc.D; James R. Eckman, A.B. and M. Katharine Smith, B.A. Volume XXXIII, 1941. W. B. Saunders Co., Philadelphia and London. Price $11.50.

This excellent volume contains its usual wide selection of publications of the Mayo Clinic. Such a volume hardly needs comment, but it might be well to point out that of timely interest is a section on aviation medicine. The book contains 232 articles covering, besides aviation, the alimentary tract, genitourinary organs, the ductless glands, blood circulatory organs, skin and syphilis, the head, trunk, and extremities, the chest, brain, spinal cord and nerves, radiology and physical medicine, anaesthesia and gas therapy, and one short group of miscellaneous topics. The subject matter maintains the usual high standard of this yearly volume.

—*L. O. Dutton.*

HEALTH EDUCATION OF THE PUBLIC. by W. W. Bauer, B.S., M.D., Director, Bureau of Health Education, American Medical Association; Associate Editor of Hygeia, The Health Magazine; and Thomas G. Hull, Ph.D., Director, Scientific Exhibit, American Medical Association. 315 pages with 52 illustrations. W. B. Saunders Co., Philadelphia & London. $2.75.

The second edition of this volume combines the experience of the authors in their respective capacities of Director of the Bureau of Health Education and Director of the Bureau of Exhibits of the American Medical Association. From these posts a wealth of experience has been summarized and condensed into a manual presenting the modus operandi of presenting to the public pertinent information.

The authors discuss in detail in separate chapters the use of the radio, exhibits, public meetings, pamphlets, newspapers, motion pictures, stereoptican slides, magazine articles, correspondenee, books, and miscellaneous deviees. They also correlate these technics into a pro-

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gram of public education. At this time the medical profession is in great need of presenting its case clearly to the public, and we can only do this by educating the public. This volume should give valuable assistance to any engaged in this type of work. It should be the function of each medical society to list prominently in its activities such educational projects, and certainly this volume could well serve as a guide to those individuals and committees concerned with such efforts.—*L. O. Dutton.*

SYNOPSIS OF ANO-RECTAL DISEASES, by Louis J. Hirschman, M.D., F.A.C.S., Ex-Vice President, A.M.A.; Ex-Chairman, Section on Gastroenterology and Proctology, A.M.A.; Ex-President American Proctologic Society; Chairman, American Board of Proctology, Inc.; Professor of Proctology, Wayne University; Fellow (Honorary) Royal Society of Medicine; Extra-Mural Lecturer on Proctology, Post Graduate School, University of Michigan; Proctologist, Harper, Charles Godwin Jennings, and Woman's Hospitals; Consulting Proctologist, Detroit City Receiving, Evangelical Deaconess, Wayne County Hospitals, Children's Hospital of Michigan, Detroit Tuberculosis Sanitarium, Detroit, 182 illustrations. C. V. Mosby Co., St. Louis, Mo.

This number of the highly valuable series of handbooks published as synopses of various fields of medicine maintains the high standard of its companion volumes. The author presents in considerable detail and with a great deal of clarity, his conception of workable and successful techniques for office procedures in proctology. The book does not deal with highly theoretical or controversial topics, but seeks rather to present a manual of diagnostic and therapeutic measures.

Of particular general interest is the final chapter of the book, "Focal Infection of Ano-Rectal Origin." The author sets forth his thesis concerning the ano-rectal region as a possible source of foeal infection. He points out with force that the general examination of the patient where focal infection is sought is not complete without careful examination of the ano-rectal region. To make this chapter more valuable, he goes into considerable detail concerning the technic of the bacteriological study of the specimens obtained, together with the preparation of vaccines for therapeutic use.

The volume will certainly fulfill more than its name as a manual for proctologists if it succeeds in pointing out the value of more complete examination in the search for causes of obscure ailments.—*L. O. Dutton.*

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1. McEachern, D.: *Canadian Med. Ass'n. J.*, 45:106, 1941.
2. Lennox, W. G.: *Med. Ann. Dist. Col.*, 10:461, 1941.

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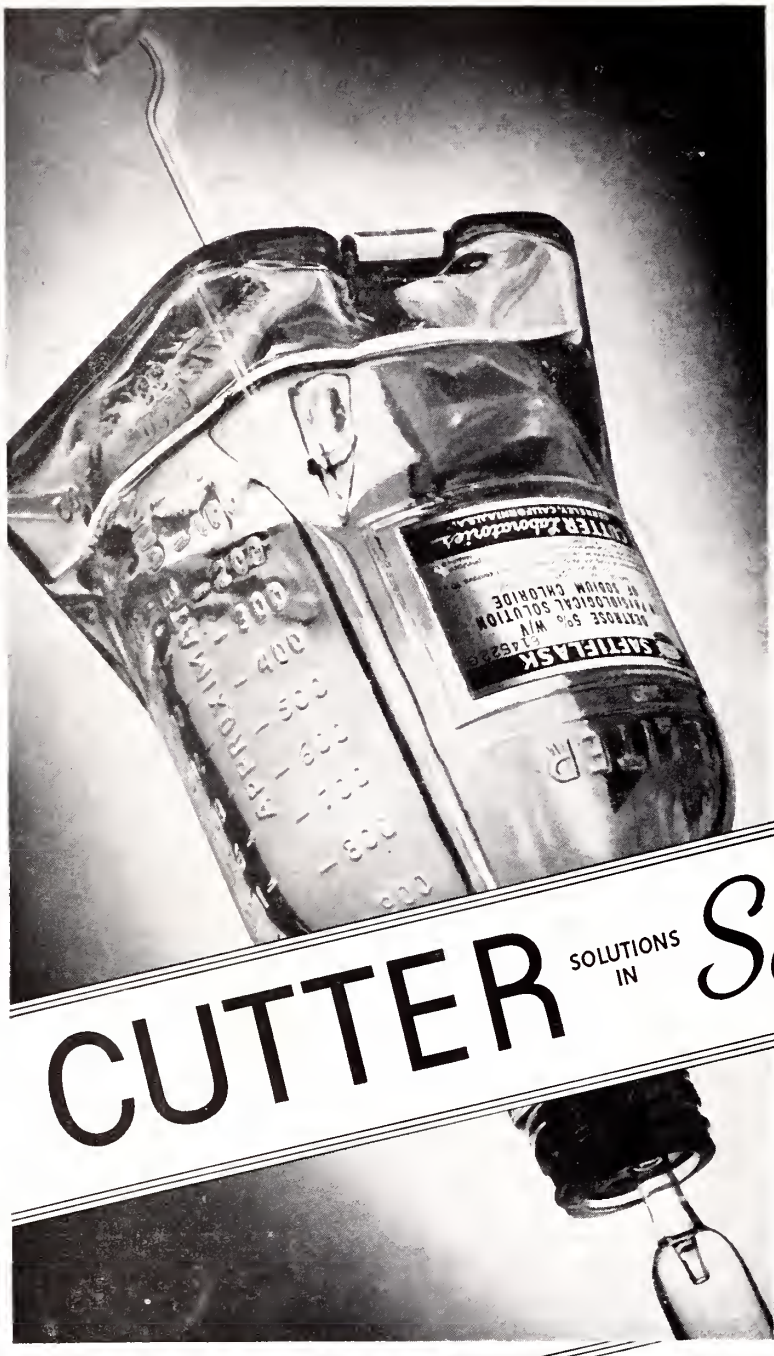

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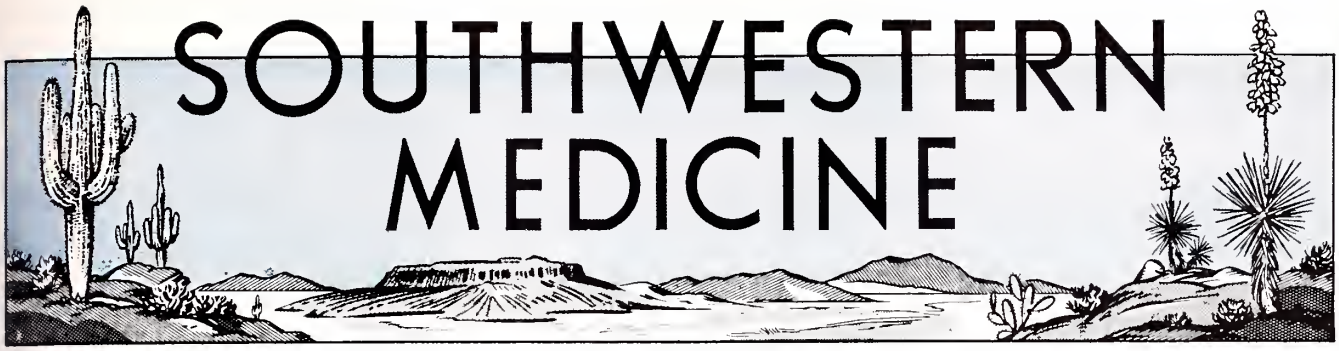

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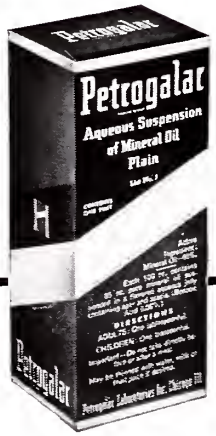

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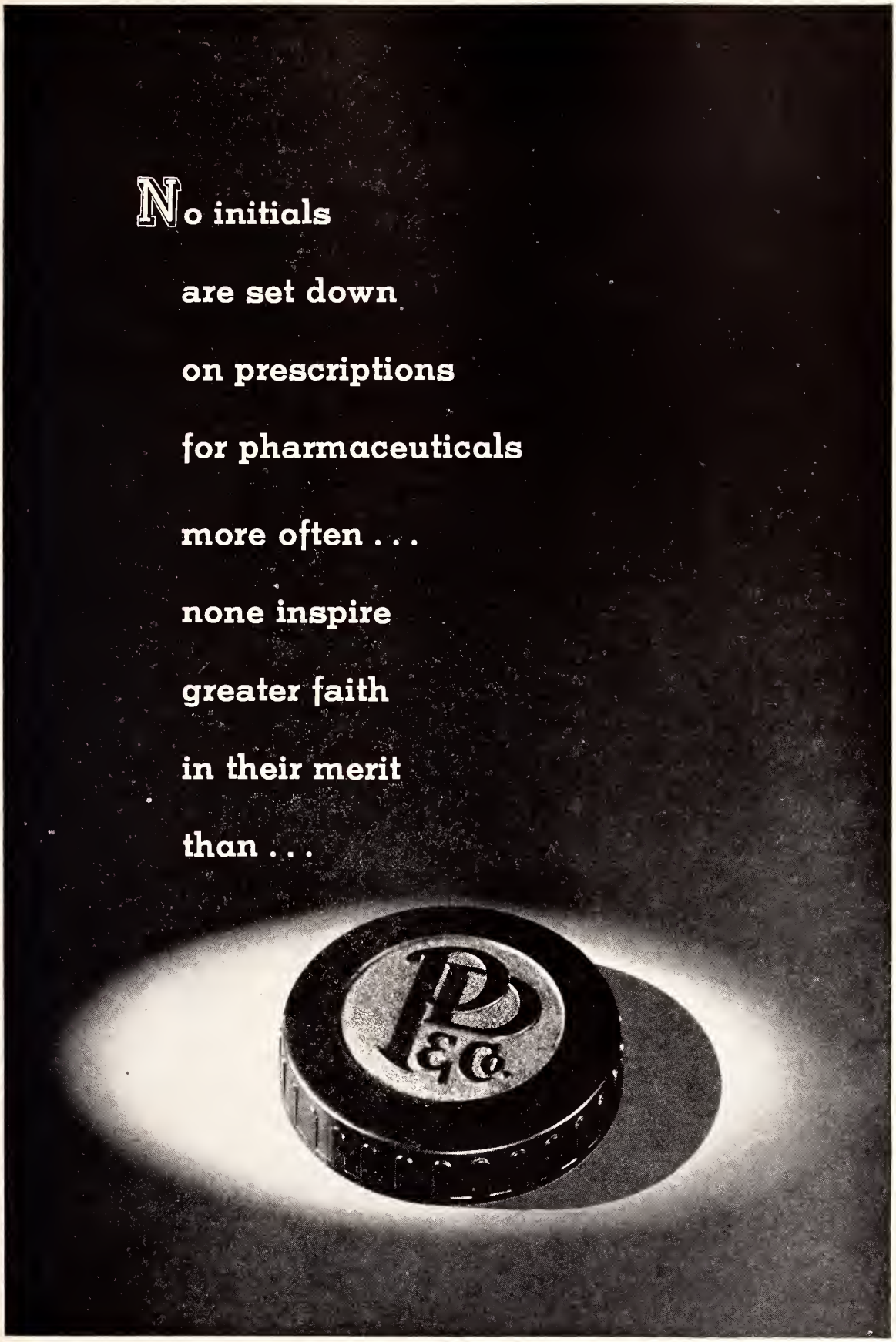
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**The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*
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"THE CIGARETTE, THE SOLDIER, AND THE PHYSICIAN," The Military Surgeon, July, 1941. Reprint available. Write Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York City.

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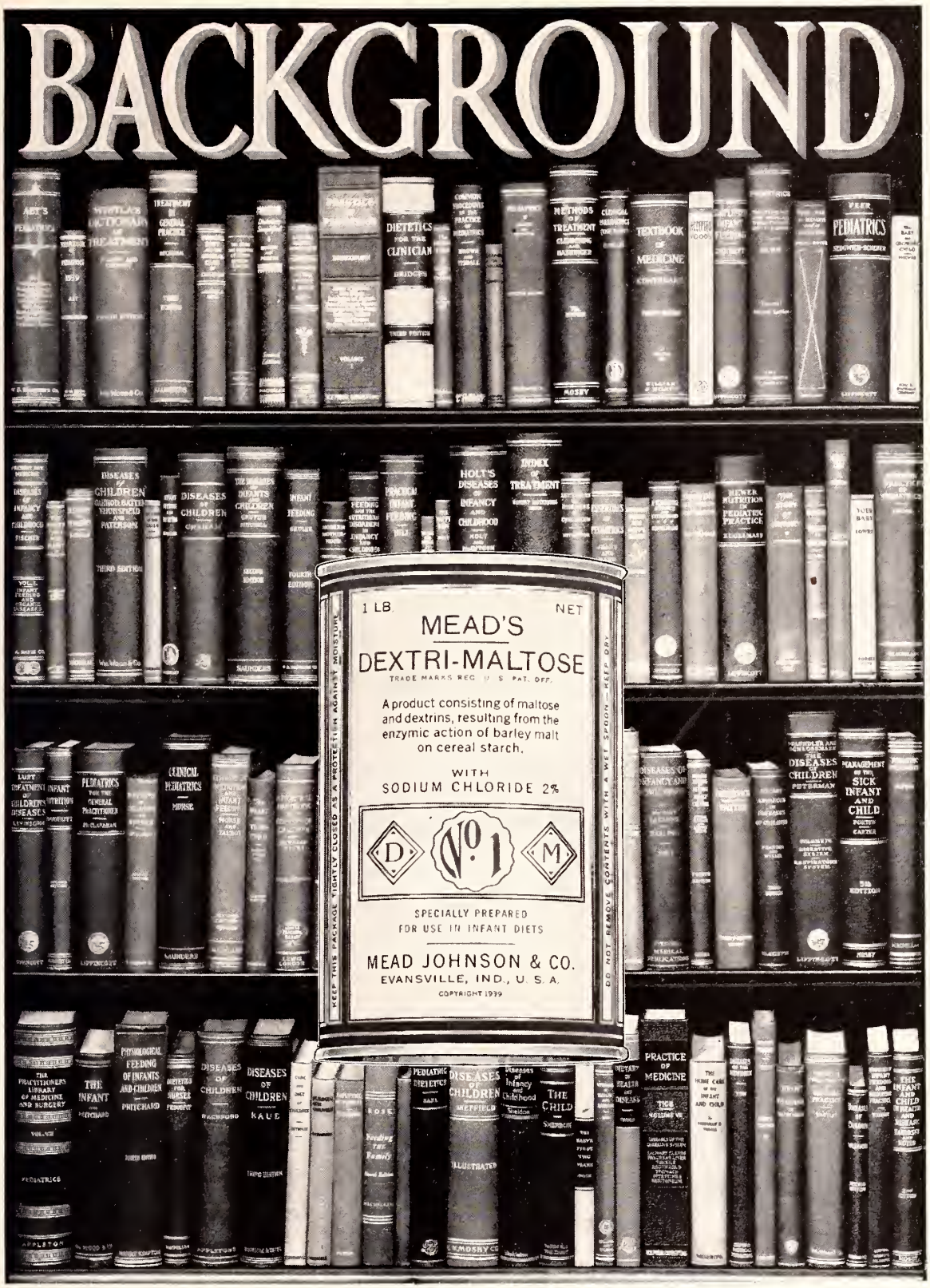
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JOHN CATHCART

One of the writer's finest friends passed on the other day. Dr. John Cathcart, one of El Paso's civic and medical leaders for many years, will not advise and befriend young doctors any more. And, as one whom Dr. John guided, scolded and prodded upon many occasions, the writer is sorry for the young doctor yet to come to El Paso who can never know this good man.

Dr. John charted a straight course over the stormy and difficult seas of a life dedicated to serving the sick. He required others to follow as straight a line, and in the doing, taught a lot of young physicians the meaning of the qualities of self-abnegation and unselfish service.

Death came to this friend in the course of his duties as a servant of his sick fellow-man. His monument he created himself—and that is the good he did among the ranks of the sick and the suffering of his home town, plus the increased stature of those young doctors he helped mold and build.

Doctor John Cathcart will live in a great many hearts, as long as those hearts have life themselves.

EL PASO RESPONDS

It is with a high degree of pleasure and pride that we report the following bit of information released by Dr. T. J. McCamant, head of El Paso's Committee on Procurement and Assignment for Medical Officers. Every doctor under 45 in El Paso has volunteered for military service by this time. He is either now on duty, has been physically disqualified or awaits orders.

That, fellow Americans, is a mark for every county society in this good land to shoot at. And that, fellow El Pasoans, makes this writer very, very proud to be writing this. And, a large bouquet to our good friend, Dr. "Mac", who having served "over there" in the last war, now serves "over here" in such splendid, patriotic fashion. America needs more like him.

GIMME

Scattered here and there in the medical and lay press are the first feeble shots in a drive to squeeze Congress into giving all of us in the service six months severance pay on discharge from military duty. The idea is that we could use the money to "rehabilitate" ourselves, re-establish our businesses, or take post-graduate courses in the professions.

Well, take it from one of the present War's veterans, possibly we had better concentrate on the huge job at hand of licking the hell out of Hit, Muss, and Hiro before we start the accursed business of hollering "gimme." From this corner it appears that we'll need all our wind for that task. The pan-handling can wait.

USE OF PLASMA

Much publicity has attended the introduction and use of blood plasma as a life-saving measure in cases of severe wounds. The transfusion of plasma, rather than whole blood, has demonstrated its worth on the battlefield during this war. Identification tags of the men in the armed services bear a notation as to the subject's blood type, yet usually transfusions of plasma are preferred, with no reference to the blood type of the patient.

Shock presents a hemo-concentration, as can be shown by the hematocrit test. Normally the cell volume in the male is about 46%, the plasma volume 54%. In the female the cell volume is 41%, the plasma volume 59%. In shock without hemorrhage the cell volume is notably increased, sometimes to a level of 80%.

That means that there is a corresponding diminution of the blood plasma proteins. At the same time the red cell count and hemoglobin are decreased. In shock with hemorrhage the cell volume is low and may drop to 10%. The plasma volume is also low. The red cell count and hemoglobin are unchanged at first, then become lowered.

In shock where there is already a high cell volume, it would appear that transfusions with plasma were indicated, rather than with whole blood. In such a case it would not be desirable to add more cells to a blood already carrying a high cell volume. It is important to supply proteins and restore the fluid volume. An intravenous infusion of 500 cc of plasma will raise the circulating protein 10% in a 140 pound person, while whole blood in the same amount will increase the proteins but 7%.

Plasma is supplied in three forms—liquid, dehydrated, frozen. Perhaps the most useful form for routine emergency is the dehydrated. This dried plasma is mixed with pyrogen free distilled water, according to proportions indicated by package directions. It is a simple, rapid procedure, the resultant fluid being ready for administration in a very few minutes. It is considered good practise to filter plasma through a No. 200 mesh filter before giving it to a patient. This removes precipitated proteins which could act as emboli in capillaries.

Thus, out of war's laboratory, there comes yet another advance in physician's methods to combat suffering and death.

Malignant Lesions of the Stomach*

VERNE C. HUNT, M. D.
Los Angeles, California

INTEREST in the surgical treatment of neoplastic disease of the stomach is sustained and encouraged by a definitely perceptible rise in the percentage of operability, a courageous extension of the limits of extirpative surgical procedures, an appreciable reduction in the mortality rate of curative operations, and what appears to be a certain increase in the number and percentage of patients surviving five or more years after radical gastric resection. It is also apparent that the members of the medical profession today are highly alert to the significance of bizarre clinical manifestations which so frequently characterize early gastric neoplastic disease. They likewise are imbued with the knowledge that prospects for cure of the disease may be entertained only through radical surgical extirpation of locally confined gastric malignancy.

That cancer of the stomach is a matter of grave concern is emphasized by data collected by the United States Bureau of Census—Vital Statistics, which indicate that approximately 30,000 deaths from cancer of the stomach occur each year in the United States. Furthermore, cancer of the stomach is responsible for about 19 per cent or one-fifth of all deaths from cancer.

The present status of operability of carcinoma of the stomach is that in approximately 50 per cent of the patients the disease is clinically inoperable at the time the diagnosis is made. Clinical inoperability in these cases is usually manifested by fixation of a large palpable mass, definite palpable metastatic lesions in the liver, metastitic involvement of the sentinel lymph node in the left supraclavicular area, infiltration of the umbilicus, involvement of the pelvic peritoneum which exhibits to digital examination a nodular rectal shelf, occasionally ascites or jaundice, and finally by extensive involvement of the stomach roentgenologically Those cases is which there are no clinical manifestations which denote inoperability comprise the group in which the hope of curative gastric resection may be tentatively entertained. However, the actual inoperability in this group as ascertained upon surgical exploration remains in excess of 50 per cent. Sometime ago I reviewed the surgical findings in 100 cases of carcinoma of the stomach which I found to be inoperable at the time of surgical exploration. In 43 per cent of these cases the primary lesion in the stomach was operable and resectable, but metastases to the liver, extensive involvement of the lymph nodes along the lesser curvature of the stomach to the cardia, along the gastrohepatic omentum to the hilus of the liver, or

* Read by invitation at the fifty-first annual meeting of the Arizona State Medical Association, May 25-29, 1942, Prescott, Arizona.

multiple remote peritoneal transplants precluded gastric resection. In the remainder of the cases extensive involvement of the stomach primarily, with or without direct invasion of contiguous structures—the pancreas, the liver, the transverse mesocolon or the colon—accounted for the obstacles to curative procedure. During the last three years we have been able to perform gastric resection in 45 per cent of the cases of carcinoma of the stomach surgically explored. In general it may be stated that at the present time opportunity is afforded for the performance of gastric resection in only one case in four at the time that the diagnosis of carcinoma of the stomach is made. Furthermore, follow-up studies reveal the startling fact that only one case in four surviving gastric resection lives five years or more. To state the matter otherwise, it may be said, optimistically speaking, that only one case in sixteen survives five years or more from the date at which the diagnosis of carcinoma of the stomach is made.

Only through surgical extirpation of the early gastric lesion may the patient be afforded opportunity for cure of carcinoma of the stomach. It should be carried in mind that heretofore the diagnosis of carcinoma of the stomach usually has been made late in the course of the disease and that the average period of survival following gastric resection fails to emphasize the appreciably gratifying results of gastric resection in those cases of early carcinoma of the stomach. Three important factors are concerned in the prognosis following gastric resection. The grade of malignancy is of foremost importance. The percentage of five or more years survival following gastric resection in the lowest grade malignancy is approximately three times that in those cases in which the lesion proved to be of a high grade of malignancy. Likewise, the factors of direct invasion by the lesion of contiguous structures, particularly the pancreas, and regional glandular involvement play an important role in longevity following gastric resection. There is ample evidence at hand which indicates conclusively that in the absence of invasion and regional metastases at the time of gastric resection the prognosis is materially enhanced.

The curability of the large ulcerating, readily palpable and easily diagnosed carcinoma of the stomach is not great. Curability diminishes rapidly with increasing certainty of the clinical diagnosis. Carcinoma in its various situations in the stomach differs greatly in its clinical manifestations and in its curability. There is no clinical syndrome by which early carcinoma of the stomach may be recognized, and not infrequently the disease is well advanced before noteworthy clinical signs occur Also, there are certain lesions which by virtue of their location are inoperable from their inception. Malignant lesions high in the fundus of the stomach and those encroaching on the cardia of the stomach are not often operable, chiefly because of absence of early symptoms, extensiveness of the involvement (often the esophagus) and the technical problems attending the surgical procedure. However, Cattell, Marshall, Phemister and others have reported instances of successful transthoracic extirpation of malignant disease involving the cardiac portion of the stomach and the lower esophagus. Recently Garlock reported 25 cases of adenocarcinoma of the cardiac end of the stomach which he had surgically explored. Only nine of these were operable, an operability of 36 per cent. Transthoracic resection and gastro-esophageal anastomosis was followed by death in four patients, an operative mortality rate of 44 per cent. However, the survival of five patients, four of them living well from seven to eighteen months at the time the report was made, definitely denotes marked progress during recent years in the surgical management of neoplastic lesions in the cardiac end of the stomach, which formerly consistently and uniformly were considered inoperable.

DIAGNOSIS

Even though methods of doing so are available, the diagnosis of carcinoma of the stomach is usually not made early in the course of the disease, but instead so deplorably late that in general and by and large gastric resection curative in purpose is possible in less than 20 per cent of the cases. Many factors are herein concerned. It is entirely true that in many instances the disease is well advanced before the patient consults his physician. It is also true that the patient oftentimes has resorted to self-medication from the beginning of digestive disturbances, and through his own failure to seek competent counsel has allowed an operable lesion to become an inoperable one. Too frequently, though, the alert patient who is desirous of seeking aid and advice regarding digestive disturbances is not the recipient of

careful painstaking investigation by the physician of clinical manifestations which may be those of early carcinoma of the stomach. Failure to recognize the fact that there is nothing distinctive about the clinical manifestations of early gastric carcinoma and that primary carcinoma is often productive of vague and bizarre symptoms of seemingly minor importance too frequently allows the busy physician to make but a superficial or cursory examination, if at all, and without serious investigation engage in a program of symptomatic treatment. Every physician should regard it as obligatory to carry out such modern investigation as is necessary to verify or allay a justifiable suspicion of malignant disease in every adult person who consults him for digestive disturbance of any nature whatsoever. One must never cease condemning the still too prevalent practice of symptomatic treatment without complete and thorough examination and investigation.

It has been said that carcinoma of the stomach may become well advanced entirely without symptoms. Such a statement is immediately justly subject to challenge. It is true that often the symptoms are not of sufficient severity to provide great concern before the clinical signs of a large fixed mass, gastric retention, loss of weight, and so forth, are manifested, which usually denote advanced disease, but nevertheless symptoms have usually been present, bizarre as they may have been. It is worthy of emphasis that an organic lesion of the stomach, either benign or malignant, is not symptomless for long after its inception. It may masquerade clinically, but by its roentgen shadow it can be unmasked.

The roentgenologist has established beyond question the fact that only through roentgenologic examination may the diagnosis of carcinoma of the stomach be made early. It is true that the value of the roentgenologic data depends upon the experience, skill and judgment of the roentgenologist. The depiction on the fluoroscopic screen or on the film of an intragastric lesion is important, but the proper interpretation of what was seen is more important. The reliability of a purely clinical diagnosis of early carcinoma of the stomach is not great, but the diagnostic error is too often perpetrated through incompetent roentgenologic examinaion. One may reliably accept the findings and interpretations of only the qualified roentgenologist.

GASTRIC ULCER AND MALIGNANCY

The question always arises when the roentgenologist finds an ulcerating lesion of the stomach which by its roentgen signs is not frankly carcinoma as to whether the lesion is an entirely benign ulcer or an ulcerating carcinoma or a carcinomatous ulcer. That question is not answerable by any other method in many cases except through surgical exploration and submission of the lesion immediately to competent pathologist. The clinician may provide data which will aid materially in the diagnosis of gastric syphilis; many roentgenologists can usually differentiate the benign tumor from carcinoma, but few, if any, are always able to distinguish between benign gastric ulcer and a carcinomatous ulcer. The therapeutic test in which clinical, roentgenologic, and, if necessary, gastroscopic observations are conducted for a period of three or four weeks, during which time intensive medical treatment of the gastric lesion is carried out, solves the problem in certain instances. The general usefulness of the test is limited for the value of the test is entirely dependent upon the reliability of the interpretation which may be placed upon the observations, and faulty interpretation has in the past occurred too often.

It should be carried in mind that temporary clinical improvement has often been noted following dietary and other forms of medical management of ulcer when instituted in a patient who harbors a gastric carcinoma. Also, roentgenoligic and gastroscopic observations at repeated intervals are subject to error in their interpretations even by competent observers in these respective fields. The gastric surgeon is often unable to determine the true nature of the lesion with the abdomen open and the lesion in his hand. Likewise, the experienced pathologist can not always distinguish the benign ulcer from the malignant one by the gross appearance of the specimen, but must resort to microscopic study in order that the true nature of the lesion may be ascertained. It is conceded that many gastric ulcers respond to dietary and medical management, but who may always know that the lesion is a benign ulcer. The frequency with which the surgeon has undertaken surgical exploration in patients in whom a regimen of

dietary and medical management of a gastric lesion has been previously carried out to find advanced and inoperable carcinoma urges adoption of a policy of early surgical exploration and gastric resection in all cases where the true nature of the gastric lesion is in doubt. Conjectural and speculative observation until the clinical and roentgenologic findings substantiate the diagnosis of carcinoma is inconsistent with the objectives of those who are interested in enhancing curability of carcinoma of the stomach.

SURGICAL PROCEDURES

Once the diagnosis of malignant disease has been established and no clinical evidence of remote or metastatic extension of the disease is discernible, or a doubtful lesion of the stomach exists, surgical exploration becomes promptly urgent. The institution of certain preoperative measures has contributed materially to the safety of surgical procedures in carcinoma of the stomach during recent years. Preoperative gastric lavage for a period of several days in those cases in which an obstructing lesion has produced gastric retention, the transfusion of blood in the anemic patient, and the restoration of body fluids in the dehydrated individual have materially enhanced the safety of surgical exploration and have facilitated gastric resection within a legitimate mortality rate. Extensive involvement of the stomach as demonstrated by the roentgenologist may deter the surgeon in his decision to surgically explore a patient in whom the indications for such intervention are otherwise clear. It must be borne in mind that at times a lesion with rather high involvement of the stomach along the lesser curvature, as depicted on the fluoroscopic screen or in the roentgenogram, is found upon exploration to be confined to the stomach and to be entirely resectable. The type of malignancy known as linitis plastica or the leather-bottle stomach exhibits characteristic findings by which it may be recognized and distinguished from other types of organic gastric disease. Even though the stomach may be extensively involved and its walls diffusely infiltrated the disease tends to remain confined to the stomach, metastasizes late and remain as an operable lesion, whereas the usual type of carcinoma with the same degree of gastric involvement has usually long since become inoperable. It is in the linitis plastica type of malignancy of the stomach in which total gastrectomy has been performed with results which often have entirely justified the risk and magnitude of the operation.

It is worthy of emphasis that in accordance with present knowledge of the disease early gastric resection provides the only opportunity for cure of carcinoma of the stomach.

Allergy and Acute Intestinal Disturbances

T. D. CUNNINGHAM, M. D.
Denver, Colorado

WHEN acute intestinal disturbances are under discussion, it is important to consider the breadth of the subject and realize the tremendous number of drugs, bacteria, nervous conditions, and foods that can cause these upsets. With the addition of foods, here again many unforeseen possibilities must be kept in mind, as for example: are the foods spoiled, infected, kept in the ice box too long; or is water contaminated or has the milk been pasteurized? With all these possibilities in mind, then allergy and acute intestinal disturbances may be reviewed.

INTESTINAL ALLERGY

In consideration of this involved subject, it is well to first discuss the pathology that may occur in an allergic patient. There are not many definite pathologic conditions recognized —only three—and they may occur singly or any two or all three together. First, edema with eosinophilic round cell infiltration; two, ulceration mild or severe; three, spasm of smooth muscle—and fourth, these may be found in any combination. However, once the allergic pathology condition has been established, then secondary infection may be added and often this so obscures the mind of the clinician that the real diagnosis is overlooked for years. In this discussion, infection will not be considered except to call attention to it as a complication.

At the present time the recognized allergic manifestations in the intestinal tract, which

Read before New Mexico Medical Society, Santa Fe, June 25-27, 1942.

begins with the lips are as follows: edema of lips, canker sores, geographic tongue, glossitis, vomiting, ulcers of the esophagus, stomach and duodenum; edema of the small intestine with cramps; diarrhea either caused by intestinal or colonic irritation; colitis with diarrhea and without; ulcerative colitis mild and severe, usually with secondary infection super-imposed and, last, pruritis ani without other local evidence such as infection or parasites. To the pathology and types of disturbances that are easily demonstrable, add the various factors first mentioned, such as: infected foods, a nervous patient drugged with coffee and tobacco, and further add fatigue, which greatly increases the number of foods to which a patient reacts and then try to unravel this picture with food tests, the testing material which is seldom proved to be active, and the reason why allergy is not in better repute is clarified. This is the present status of allergy of the gastro-intestinal tract and, although leaving much to be desired, still has contributed greatly to the diagnosis and relief of many conditions, heretofore not relieved.

DIAGNOSIS

In order to arrive at a correct diagnosis, the procedures below should be followed and they are given in order of their importance, namely: a careful family history in any blood relative, as regards hay fever, asthma, eczema or migraine headache This should reach as far back as great-grandparents and always as regards immediate aunts, uncles, brothers and sisters, for allergy may be latent two generations and then be augmented by a union of two allergies and produce very acute manifestations. The union of an allergic mother and father may have 90% of their children allergic and usually do. When only one side is allergic, 40% of the children may be allergic. Now the condition leading up to the intestinal disturbance must be carefully analyzed and in gastro-intestinal allergy this is especially difficult because of the quick changes that may take place. Foods, which are eaten only once in four to five days may not cause symptoms, when first eaten: whereas, if eaten daily, may cause acute symptoms. With other patients, every time a certain food is eaten, the characteristic disturbance for that patient will occur. So the patient or mother of the patient must be educated in the possibilities. Seldom is there fever with intestinal allergy and bloody stools are very rare and are usually associated with other infections, except in allergic purpura, which fortunately is rare.

In regard to canker sores, geographic tongue and definite glossitis, the food tests will usually help in clearing the condition. Here again the vitamin deficiencies cloud the clinical picture and allergic tests should be withheld until adequate vitamins have been taken for a few weeks. The results of an allergic test in severe cases of canker sores, with the removal of the offending foods from the diet, is dramatic, whereas, the geographic tongue can only be completely cleared in mild allergic individuals. In the more severe cases, apparently, the sensitization is so general that the tongue can be made comfortable but still retains the geographic appearance; whereas, in glossitis there is usually only one or two foods that cause it and can be found by an elimination diet.

In esophageal ulcers, as well as gastric or duodenal, the family history is important. However, if the usual treatments do not clear the symptoms, a food test is desirable and often is dramatic in its relief. A rule in ulcer cases of all kinds is this: When the patient is not relieved by accepted medical treatment, beware; there is something else causing the disturbance. The localized edema of the small bowel causes the cramp-like symptoms in the middle and lower abdomen. This is usually without diarrhea and raises the question of acute appendicitis. However, palpation usually does not elicit spasm. The blood count, if high, has large number of eosinophiles, or which is more common, the blood count is lower than normal and the polymorphonuclear cells percentage is not increased. At times, the cramps are out of proportion to the other signs. It is wiser to take out a normal appendix than to diagnose allergy and be wrong.

In diarrhea, the story is usually that of recurring looseness of the bowels either daily, with great variations in the number of movements, or with periods of regular movements and the diarrhea, which is depleting, does not prostrate the patient and they are almost never forced to bed. In adults occasionally, the explosive type of diarrhea occurs and produces splanchnic shock. These patients usually consult a heart specialist because of the shock, rapid pulse and sweating, which follows immediately a large sudden bowel movement. Another type

is where the diarrhea recurs with almost any food, which is eaten two or three days in succession and these poor patients are often awakened early in the morning with cramps, followed by loose bowels.

Probably the most serious condition, which each month is leaning more heavily on allergy, is that most distressing malady—ulcerative colitis. There are probably several causes for this condition but certainly some of the cases are greatly relieved by having the foods, to which they are sensitive, removed from the diet. Since no other treatment gives any permanent relief, a food test makes them no worse and often helps to relieve the frequency and pain of movements.

Apparently, pruritis ani is primarily due to infected anal crypts, but it is interesting to note that most of the severe itching occurs in individuals with an allergic background. However, correct anal surgery relieves the crypts and the itching; so, only in cases where the crypts are absent or not infected and no parasites can be found is allergy urged on the patient as a possible cure.

FOOD TESTING

The treatment in allergic conditions, where food is the offender, is elimination of the offending food from the diet. Patients cannot be desensitized satisfactorily to foods. In infants, the problem is difficult because they are easily upset and they must eat what is offered. Then testing is unsatisfactory, as they react to scratches and they cannot be kept on one food for three to four days, at a time, unless it be milk and that is what they are usually taking when the trouble starts. Here the technic is a careful and painstaking juggling of foods; first, change to boiled milk; if not better, use goats milk; if still no relief, soy bean milk. Usually, by this time, there has been a change. Then one food every twenty-four hours may be added to the diet.

However, when a food has been eliminated from diets, especially in the young folks up to twenty-five years of age, the patient tends to lose sensitization for the food which is not in the diet and acquire sensitization for the foods which are being eaten. So, by repeated test and changing of foods, a certain immunity is built up, although seldom is immunity established for all foods. Usually there are certain foods, which will cause trouble when eaten, especially two or three days in succession. A dose of castor oil should immediately precede any treatment of the intestinal tract where infection or allergy is suspected. The technic of testing is badly abused; first the houses have sold a little set of forty foods for testing; many times the proteins are inert and never are there enough to cover the whole field. Every adult is in contact with from one hundred to one hundred and fifty foods in a period of two weeks; also, even in the best hands, the testing materials are not a accurate as is desired. However, they are the best available today.

The clinical test for offending foods is so simple it is difficult. It is given for record. First, give a dose of castor oil; secondly, put the patient on one food, preferably beef, chicken or lamb and absolutely nothing else, except salt. Keep to the food selected, unless the condition is worse, for three to four days. If worse immediately (and if sensitive to the food, this will occur) change over to one of the other meats. After the patient is free of the symptoms, then, once in twenty-four hours, add one simple food; i. e. the patient is on nothing but beef and is better after three or four days; then, orange juice is added, so the patient has beef and orange juice for twenty-four hours. If the symptoms do not return, then potato is added and the patient has potato, beef and orange juice for the next twenty-four hours, etc. When the symptoms recur, the food which was last added is considered the offender.

Then, in summary, it may be stated that there is a definite group of symptoms referred to the gastric-intestinal tract in allergic individuals, which are caused by common foods, and these symptoms and signs may be diagnosed by careful allergic studies. Secondly, these conditions may be helped by the removal of offending foods from the diet.

Paranasal Sinusitis

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TO the trained otolaryngologist the extent of misinformation concerning the sinuses in disease and health is sometimes astonishing. Such misinformation is not completely confined to the laity. Too often one's colleagues in other fields of medicine are heard to say, with utter sincerity, that "one sinus operation leads to another," or "I've never seen a sinus cured." It is perhaps the fault of the otolaryngologist that he has not undertaken a more comprehensive course of education of both his colleagues and the laity regarding this phase of the practice of medicine.

Some, surgical nihilists, have attempted to treat all cases of sinal disease with drugs and with physiotherapy. Others see a surgical problem in most diseased sinuses. It is the duty of the otolaryngologist today to so equip himself with basic knowledge and judgment that he may thereby be enabled to chart a middle course between the two above suggested. And, in so doing, he will serve the cause of his sometimes maligned specialty; but more important, he will better preserve the health of his patients.

Disease of the tissues of the sinuses is not greatly different from disease of soft tissue anywhere else in the body. There is inflammation, the production of swelling, of pus; there may be fibrosis and consequent thickening; there may be new growths; there may be impairment, and destruction of function; there may be putrefaction and necrosis. Much the same type of organisms gain inroad into sinus tissue as elsewhere. Differing in location from other tissues, sinal membranes may give different symptoms when diseased. One would not expect abdominal cramps from an acute maxillary sinusitis, yet headache would certainly be not unexpected; too, the swallowing of copious quantities of sinal discharge might lead to such symptoms as anorexia, nausea and vomiting.

ANATOMICAL AND FUNCTIONAL ASPECTS

The paranasal sinuses may be divided into 2 groups, viz., anterior and the posterior. Comprising the anterior group are the maxillaries, frontals, and anterior ethmoid cells. The posterior group is made up by the posterior ethmoid cells and the sphenoid sinuses. Sinuses take their names from the bones in which they are located. The anterior group drains into the middle meatus, while the posterior group drains posteriorly into the superior meatus. Sinuses vary a great deal anatomically, as to size, capacity, configuration, etc. The ethmoid cells may be few or many in number. Sometimes one or both frontal sinuses may be apparently congenitally absent. This point is worth remembering in transillumination. The author has operated on maxillary sinuses exhibiting a bony partition so placed that the sinus was divided into two definite cavities. The position of the natural openings of the sinuses may also vary widely. In attempting to probe or irrigate via the ostia, this anatomical deviation must be borne in mind.

Simply stated, sinuses are cavities in the skull, communicating with the air chamber of the nose through very small openings. The cavities serve to lighten the skull in total weight, and because they are lined with a tissue rich in blood supply (normally) aid in warming and conditioning the inspired air. The tissue lining the sinuses is rather thin, contains goblet cells which secrete a mucoid fluid, numerous capillaries, a basement membrane, and is ciliated. Normally the cilia beat rhythmically toward the ostium, carrying foreign particles such as dust, bacteria, or pollen on a blanket of mucus out of the sinus via its ostium into the nasal cavity. From here the foreign material may be carried on a mucous sheet posteriorly to the nasopharynx.

The nasal sinuses and the chest are connected via a network of lymphy channels and glands. The antra and frontal sinuses drain into the upper and middle deep cervical glands, submaxillary glands, tonsils and bronchial glands. The antra and tonsils drain into the glands of the hilum, and from there, into the bronchial tree.

A healthy sinus is one that is moist with mucous and has its cilia beating toward an open ostium. Impairment of these functions leads to disease. Likewise, treatment of a diseased sinus should be directed toward reestablishment of full function, the objective in therapy of any

diseased tissue elsewhere in the body. Therefore, it is imperative that one possess an understanding of the effect of certain procedures upon the sinal membrane.

PATHOLOGY AND BACTERIOLOGY

Acute infections lead to impairment of the ciliary movement. Subacute and chronic infections show destruction of the cilia and goblet cells, depending on the length and severity of the infection. The basement membrane may become edematous and thickened, with an increase of connective tissue. There may be colonies of bacteria imbedded in this membrane. Surrounding these colonies there will be found cell debris and leukocytes, products of chronic inflammation. Free pus may bathe the sinal membrane. As the process becomes more chronic there may be polyp formation, cysts, or mucoceles.

Depending upon the extent and chronicity of the pathology present in the sinal membrane, there may take place some tissue regeneration, provided that the infection is brought under control, and the products of inflammation are removed.

Allergy plays a part in the process, but to what extent has not been completely shown. At birth the sinuses are practically sterile, but shortly afterward many types of bacteria can be isolated from the membranes. No adults have sterility of their sinuses, and most individuals have persistent, ever-present pathologic changes demonstrable in their sinal membranes. Yet not all eventually acquire clinical sinusitis. It is when a definite point of tissue involvement is reached that the sinus becomes diseased clinically. That point of pathological involvement varies with the individual, his immunity, structural peculiarities, the virulence of invading organisms—all such intangibles that predictions in individual cases are quite impossible. Nearly all known bacteria have been found in human sinuses. Most frequent are various strains of staphylococci, pneumococci, colon and influenza bacilli. Fusiform bacilli and various spirilli have been isolated. In chronic infections the streptococci tend to become the dominant strain present. Blood supply to the chronic inflammation area of the sinal mucosa tends to diminish, being decreased by the edema, fibrous tissue, etc. Hence the nests of bacteria imbedded in the membrane may never be reached by blood-borne chemicals such as the sulfonamides. Local applications or irrigations likewise fail to sterilize the imbedded colonies of bacteria. It follows then, that the chronic membrane is best treated by surgical removal. That is a highly practical fact to use in rendering a verdict as to indicated treatment in any given case of sinusitis.

EFFECT OF PHYSICAL AND CHEMICAL AGENTS

Many workers, including Fenton, Larsell and Proetz, have shown that the sinus mucosa reacts most positively to various extraneous agents. In this, these membranes closely resemble the nasal mucosa.

Chilling of the membranes may cause a primary shrinkage, to be followed by secondary engorgement and swelling. A large amount of mucous may next be secreted as a protective measure. The tissues are highly sensitive to heat and cold, and respond actively to such stimuli. Temporary damage is easily inflicted, and the tissues are rendered susceptible to further bacterial invasion. Such a sequence may mark the beginning of an acute coryza with sinus complications. The sinuses are concurrently inflamed with the nasal tissues at the time of a common cold. As the cold is brought under control, the sinal membranes tend to regain their former status along with the nasal membranes. Sometimes, due in some cases to poor drainage or wrong medication, sinal membranes become chronically inflamed. This condition obtains in the so-called "chronic cold"—a misleading term. The "chronic cold" is not a cold at all, it is, in reality, a subacute or chronic sinusitis.

Since the sinus mucosa is a highly specialized, rather delicate tissue, it would seem prudent to exercise a great deal of care in the choice of local medication. Various drugs produce profound effects on the sinus mucosa. Adrenalin, cocaine, menthol, phenol, mercury derivatives, and silver salts are some of the agents that may paralyze or kill the cilia. To impair the function of the cilia is to destroy one of the first lines of defense of the body. Oils of various sorts interfere with the action of the cilia and the blanket of mucous. Hypertonic or hypotonic solutions of any sort exert a deleterious effect upon the sinus mucosa. The use of non-vegetable oils as nose drops in the very young or the aged is fraught with danger, in that numerous cases of a lipid pneumonia have been traced to this practice. Extreme heat or cold or dryness of the inspired air affect the nasal and sinal mem-

branes adversely. In intranasal and sinal medication, a good rule to follow is that of avoiding the use of any strong or stinging type of drug. The majority of inflamed sinuses will become clinically well if too much and too vigorous treatment is not used. The watchword in the management of acute, uncomplicated sinusitis is "gentleness," coupled with a vast respect for the integrity of the tissue involved. The sinal tissues are rather marvelously equipped to withstand and throw off infection, and will usually do so if not subjected to too much well-meant interference. Warm, isotonic solution of sodium chloride is often comforting and helpful to an inflamed nasal membrane. Other solutions, such as ½% ephedrine or ¼% to ½% neosynephrin, in a vehicle of physiologically normal salt solution, are useful and stimulating to nasal and sinal membranes. The above mentioned medicaments do not exert a bactericidal effect. They cleanse mechanically and act as mild vasoconstrictors. This action tends to promote patency of the sinus ostia, necessary for drainage and aeration of the infected sinus. Of late, certain investigators report the use of weak solutions of the sulfonamides as nasal irrigations, claiming satisfactory results in the treatment of nasal and sinal inflammation.

DIAGNOSIS

All is not gold that glitters; likewise, all is not sinusitis that appears so. Paradoxically more sinusitis is diagnosed than exists. The impression is rather wide-spread that to diagnose sinusitis is an easy task. Yet, to properly evaluate and assess the relative importance of sinus-like symptoms may tax heavily the best knowledge and diagnostic acumen that one possesses. Upon correct diagnosis will depend the treatment and outcome of each case. There are certain very definite steps in the diagnosis of sinus disease, and to do the job at hand correctly, these steps must be followed. An outline is given:

1. History.

Important to know is the history of the present illness, its development and course. What has been done, if anything, in the way of treatment? Have other similiar attacks occurred, and what was done? How about the general history of the case? What illnesses, what operations? Is there anything of significance in the family history, such as allergy, syphilis, tuberculosis, insanity, cancer? Is there a postnasal drip or morning cough?

2. Physical Examination and Laboratory Aids. This should be complete. It is essential to know the presence of generalized diseases. What is the nutritional state of the patient? What residual effect has been left by various diseases? In other words, what general equipment does the patient possess to aid him in overcoming diseases? And what order is it in? What reserve does it possess? The examination of the head and neck should include the pharynx as well as the teeth, tonsils, cervical glands. Note is to be taken of the nasal structures, including the septum, the turbinates, the meati. Inspection of the nose is done with a speculum, the nasoantroscope, the postnasal mirror. This should be done before and after the use of a mild shrinking solution in the nose. Is there deviation of the septum? Where, and how marked? Is proper ventilation impaired? If there hypertrophy of the turbinates? Acute or chronic? Anterior or posterior? Is there adenoid tissue in the nasopharynx? Is there pus? Where does it come from? What is the color of the nasal mucosa? What about the type of secretion and the amount? How do the tissues respond to shrinkage? Are there new growths present, or foreign bodies, or parasites, or malformations of any sort? Is there swelling of the eyelids? Or exophthalmos? Or limitation of motion of the eyes? Can pain be elicited on pressure over the frontals, the ethmoids or maxillaries? Sometimes a diagnostic lavage should be done. The washings should be inspected for type and amount of discharge. A cytologic study of the washings may give valuable information. Transillumination is of some value, although too much reliance can not be placed in the resulting observations. Allergic studies may be indicated, and when done must be thorough. Microscopic studies of smears made of nasal secretion are quite helpful. Roentgenograms are a highly necessary part of the diagnostic procedure. Various positions are used by various observers. The main point of this part of the examination is to get good clear views of the air spaces. Sometimes x-rays should be made with the sinus filled with iodized oil. This procedure helps in the visualization of neoplasms, which show filling defects in the sinus contours. Also, by the use of iodized oil a fairly accurate measure of the thickness of the sinus mucosa may be

obtained. This is important in estimating the chronicity of the inflammatory process.

3 Assessment of Psychological Factors

For some reason, there are more neurotics about bowels and sinuses than of any other organs in the body. Every otolaryngologist has had patients who had normal sinuses, yet were bewitched with the obsession that they were sufferers from sinus disease. So much hocus-pocus has been built up in the public mind regarding sinuses that many people easily develop neuroses, varying from mild to vicious, about their having sinus disease. It is extremely important to assess the psychological stability of the patient who presents himself with supposed sinusitis. This is another way of saying that each patient is a problem unto himself—that one will respond to treatment that gets nowhere with another. In this field, as in all medicine, one's first thought must always be of the patient as a complete individual, not just a human body supporting an interesting group of sick sinuses. During the questioning and examination of the patient, much can be learned of that person's hopes and fears, emotional stability, objectivity regarding himself, the probabilities of his cooperation, how disease and other troubles affect him. These things, too, enter in one's final judgment as to just what ails the patient, and what treatment should be chosen to get him well.

OUTLINE OF TREATMENT

Correct treatment is dependent on the correct diagnosis of the type of sinusitis present. Necessarily, treatment must be fitted to the individual case. The aim of all methods is, in the final analysis, to aerate, drain and restore the tissues to normal. Without going into too much detail, some of the procedures available in the treatment of sinusitis are:

1. Medical

A. Shrinking solutions used as sprays, drops, irrigations, displacement, packs.
B. Lavage with iodized oils, normal saline solution, shrinking solutions, antiseptic solutions.
C. Use of autogenous and stock vaccines, based upon the type of organism present.
D. Foreign protein therapy.
E. Use of anodynes as indicated.
F. Allergic study and treatment, using various tests and methods of desensitization.

2. Surgical

A. Basic
(a) Submucous resection (b) removal of nasal polyps, (c) correction of all malformations in the air chambers of the nose, (d) removal of infected adenoid or tonsil tissue, (e) dental care of infected teeth, (f) correction of irreversibly diseased or hypertrophied turbinates.
B. Direct
(a) Nasoantral openings, with cristectomy, (b) complete operations such as the Caldwell-Luc procedure for the antra, the Killian type for frontal surgery, the transantrumethmoid procedure in pansinusitis, exenteration of the ethmoid cells via the intranasal route. These operations aim to denude the infected sinuses of all membrane present.

3. Physical

(a) X-rays and radium coupled with surgery, in neoplasms.
(b Shortwave diathermy.

In acute sinusitis, where irreversible changes have not occurred in the diseases tissues, medical treatment should be chosen. The inflamed membranes must not be subjected to too much manipulation and interference. In subacute sinusitis, one should generally use medical measures first. If success is not thereby attained, the basic surgical procedures are indicated. In chronic sinusitis, or that which is complicated by neoplasms, the more complete surgical measures are indicated. In the chronic type of sinus disease the membranes have undergone irreversible, fibrotic changes. No amount of vaccines, drops, sprays, allergy therapy, vitamins, irrigations, x-ray, diathermy, and the like, can effect a cure of a sinus so diseased. The fibrotic membrane, often pyogenic because of imbedded bacterial nests, must be completely removed and adequate drainage and aeration provided. This can only be accomplished by the use of complete surgical procedures. The word "complete" is used rather than "radical." There is nothing radical about the removal of a diseased appendix; neither is the adjective apt when referring to the removal of diseased sinus tissues. In general, deep x-ray therapy of the chronically diseased sinus membranes is not attended with good results. Such tissue is best treated by surgical removal.

As elsewhere in the body, if the proper regime of treatment is adopted in caring for the different types of pathology present in the sinuses, good results may be anticipated. Likewise, failure to cure, and discredit upon the specialty of otolaryngology may be brought about by choosing the wrong type of treatment in the given case. This point is to be stressed, for therein lies the reason for many of the failures in the treatment of sinus disease.

Not much has been said about the effects of climate on sinusitis, and deliberately so. Disease of the sinuses seems to be as prevalent as appendicitis in most climatic zones. It is to be expected, however, that in areas of the temperate zones which experience wide fluctuations of temperature and humidity, more colds and upper respiratory infections are apt to occur. This, in turn, may lead to many cases of sinusitis. Dry, warm areas of the United States,

as in the semiarid Southwest, do not experience such sudden and violent temperature changes as are common in the Great Lakes area or on the Eastern seaboard. Since climate is known to have definite effect on man's resistance to disease and feeling of well-being, it is probable that generalized benefit is gained when a patient with sinusitis experiences improvement on a sojourn to the dry Southwest.

COMPLICATIONS

Sinusitis should be diagnosed and treated with full awareness that certain of its complications can be of fatal outcome. An infected sinus can act as a focus of infection in the production of such diseases as acute rheumatic fever, acute and chronic arthritis, bursitis, tenosynovitis, myositis, chorea, cholecystitis, colitis, acute and chronic endocarditis, choroiditis, iritis, and scleritis, acute and subacute glomerular nephritis, pyelitis, cystitis, neuritis, myelitis, posterior, ganglionitis, osteomyelitis.

Some of the more dangerous complications of sinusitis are orbital abscess, retrobulbar neuritis, cavernous sinus thrombosis, brain abscess, meningitis, osteomyelitis of the skull and bronchiectasis. Early recognition of the onset of any of these complications is imperative. In general, an early warning of trouble ahead is given when a patient who has been doing fairly satisfactorily becomes more or less suddenly lethargic and more ill. Some more specific early danger signals are:

1 *Orbital abscess.*

Edema of the orbit with pain. Rise in temperature. Lids dusky red, soft. No change in vision. If the infection increases and an abscess forms, the lids become more swollen, hard and red. There is more pain, higher fever, painful limitation of motion of the eyeball. The eyeball may be displaced downward or outward. Vision is impaired. There may be phlebitis of the ophthalmic veins with septic temperature and chills.

2 *Retrobulbar neuritis.*

There is a gradual or sudden loss of visual acuity. The patient may notice a blurring or loss of vision in the eye on the affected side upon arising in the morning. After a few days motion of objects may be again perceived in the peripheral field, but central vision remains impaired. The involvement of the optic nerve may then completely disappear, or it may progress to complete blindness.

3 *Cavernous sinus thrombosis.*

This complication may follow orbital abscess. The infection passes from the orbit to the cavernous sinus via the ophthalmic veins. Organisms most frequently found in this condition are staphylococcus aureus and hemolytic streptococci. Early in the course there is pain in one orbit and a violent headache. The symptoms usually go to the other orbit within a short time. There is increasing edema of the eyelids, cheek and root of the nose. There is exophthalmus and chemosis, bilateral. Ptosis, strabismus and pupillary changes ensue. Chills and a septic fever of up to 105° occur. There may be vomiting and extreme lethargy, both mental and physical.

4 *Brain abscess.*

Usually located in the frontal lobe. The first stage may be short, marked by a chill and fever, severe headache, prostration, mental lethargy, nausea and vomiting. This condition may not be recognized for what it is, and may be mistakenly diagnosed as a mild influenza. Following this stage there is a quiescent period, with no febrile reaction. Next, the pulse slows, there is constant headache, various involvements of the extra-ocular muscles occur, there may be pupillary changes with visual impairment. Convulsions or paralyses of various parts of the body appear, there are definite mental changes. Later, when the abscess ruptures, there is coma, high fever, tachycardia, stiffening of the neck muscles, various twitchings of muscles, hyperesthesia, flaccid paralysis and delirium.

5 *Meningitis.*

There is an early rise in temperature to over 104°, and it remains on a high level. There is a severe, constant headache, anorexia, prostration, vomiting, restlessness and generalized hyperesthesia. Rigidity of neck and spine appears; with increased activity of the deep reflexes. Later may occur projectile vomiting, bradycardia, respiratory aberrations, cranial nerve paralysis, increased blood pressure, flaccid paralysis of the extremities and a gradually increasing coma.

6 *Osteomyelitis of the skull.*

There may be an area of dull pain over the frontal sinus, low temperature, mild chills, some malaise. A tender swelling appears over the sinus or above it. If an acute diffuse osteomyelitis is developing, it may begin with a sharp headache, high fever, chills, tachycardia and several areas of tender swelling on the skull. Severe toxemia may develop along with signs of a meningitis. Abscesses form in the scalp. It should be stressed that there may be no early signs demonstrable in the roentgenogram.

7 *Bronchiectasis.*

Chronic maxillary sinusitis in particular, may be an etiological factor in producing this complication. The infected material from the draining sinus may be directly inhaled into the

bronchi, or infection may proceed there via the venous and lymphatic channels. The earliest symptom is a chronic cough, sometimes made more pronounced by changing position on lying down or arising. The cough may disappear for a time, to reappear following the next attack of upper respiratory infection. Early there is no fever, no other particular signs of illness. In fact, a fair degree of health is usual. Until the disease has progressed past the very early stage, there is not much sputum, and this is not characteristic. Later the sputum is frothy and may separate into layers on standing. When this occurs, and one layer is composed of green, foul liquid, the disease is rather well developed. Hemoptysis is frequent, and may be one of the early signs.

It is understood that few cases of sinusitis develop any of the above-mentioned complications, yet if the possibility of their occurrence be borne in mind much serious illness may be spared, and many lives saved. One who treats sinusitis must, therefore, not lose his awareness of the early danger signals.

COMMENT

Sinusitis is a wide-spread disease, of greatly varying severity. Because it may be a crippling or even fatal affliction, its study and treatment must be based on sound, basic knowledge and comprehension. This knowledge should embrace a thorough understanding of the anatomy, pathology and physiology of the tissues concerned. Significant additions to research concerning the behavior of the sinus tissues in health and in disease have been made in recent years. Diagnosis and treatment of sinusitis, if done in the light of this later-day information, holds out to those afflicted, quite as much hope for a cure as can be connected with diseases of tissues anywhere else in the body. It is hoped that the observations and comments contained herein will prove to be of value in promoting better understanding of the possibilities in treatment of sinus disease today.

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Conditions of General Interest

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In gathering material for this presentation of eye conditions of interest to the General Practitioner, I have omitted cataract, glaucoma, retinal detachment and fundus changes, which should be classified in the specialty of the ophthalmologist. The more common eye conditions are considered, which are usually seen and can be treated by the General Practitioner.

CONJUNCTIVITIS

THERE are many types of conjunctivitis. This condition is characterized by an injection of the vessels of the tarsal conjunctiva and usually that of the bulbar conjunctiva. The cornea is not primarily involved. Differential diagnosis of conjunctivitis can sometimes be made by the type of injection of the conjunctiva, by the presence of follicles and by the location of the injection. Further differentiation can be made by laboratory methods. These methods are (a) direct smear of the secretion of the eyes, (b) culture and (c) microscopic examination of conjunctival scrapings. Perhaps the first consideration in the treatment of conjunctivitis is that of keeping the eyes free from discharge. If discharge is allowed to remain in the eyes, the organisms therein may attack the cornea or the discharge will adhere to the cornea and result in the formation of a corneal ulcer. I prefer to use boric acid solution for irrigations, and these irrigations should be done frequently, every five or ten minutes if necessary to keep the eyes free from discharge. The medication used to combat the infection depends entirely upon the type of conjunctivitis present or the organism causing the infection. I have had success in the more common types of conjunctivitis by using Phemerol, (aqueous solution 1:3000, Parke-Davis). You sometimes find a mixed infection causing the conjunctivitis, such as the gonococcus and staphylococcus aureus; for this specific infection, I prefer to use silver nitrate solution, ¼%, instillations twice daily.

LID ANOMALIES

In elderly people we often see small cysts along the lid margins which, in themselves, are not troublesome unless they occur in such number or of such size that they produce an artificial ptosis. These cysts can be serous, sebaceous or may contain sanguinous fluid. I treat them by anesthetizing the lid with a 2% novacaine injection, excision of the sac and cauterization of the base with phenol or electric cautery.

Styes are an inflammation of the eyelash follicles. Styes occur at the lid margin and will either rupture simultaneously at the margin or should be incised at the area of pointing. Before pointing has occurred, I have the patient apply a hot compress to the lids and they continue this after the pus has been expressed to speed up healing.

A common cyst of the lid is the chalazion, which is a chronic affection of the meibomian gland. These cause a hard firm swelling of the lid, approximately 5 mm. or more from the lid margin and are not painful unless they become inflamed. When such inflammation takes place the secretion in the gland degenerates to form sterile pus and this will point, either toward the skin surface or conjunctival surface. Hot compresses are indicated. When the inflammatory reaction is reduced, the entire gland should be removed. An incision is made through the surface toward which the chalazion is pointing and the tumor excised. A condition sometimes confused with a chalazion is that of lid abscess. A lid abscess occurs away from the margin and is very tender from the start. These invariably point and should be hot compressed until pointing occurs. At this time they should be incised and the line of incision should be in the same direction as the wrinkles in the lid in order to avoid unnecessary scarring.

Carcinoma of the lid, usually, is first noticed along in the fiftieth or sixtieth decade. These are seen first as a small crusted area and the patient usually says it has been there for some time and is gradually getting worse; that it has not responded to any treatment. These are usually basal or squamous cell and respond quite readily to x-ray therapy. They can be removed surgically when x-ray is not available, and when surgical removal is attempted the incision must necessarily be outside the involved area. More advanced cases of carcinoma, involving the lids and orbit are often seen. There is not much to be done about this type of case. The patients complain of profuse discharge and bleeding and I have x-rayed these cases with the sole object being to stop the discharge, etc., and make the patient more comfortable.

Complete facial paralysis results in the inability, on the part of the patient, to completely close the eye. This inability to close the eye may result in a drying of the cornea, especially when the patient is asleep. In this type of case the eyeball should be protected by the instillation of 4% boric acid ointment at bed time. Plain white vaseline or petrolatum may be used satisfactorily. The cause of the facial paralysis should be investigated and treated. I have seen an occasional instance in children in the age group of 15 to 20 years and in these cases no cause could be found and the paralysis cleared spontaneously over a period of, approximately, six months.

EXOPHTHALMOS

Perhaps the most common cause of exophthalmos is a toxic thyroid. In this case the exophthalmos is due to an over development of the extrinsic ocular muscles and removal of the thyroid gland will not cause appreciable reduction in the amount of exophthalmos. These patients should be told this fact before they are submitted to an operation, because time and again I have seen paients who considered their operation unsuccesful because their eyes were still "popping." Exophthalmos, due to toxic thyroid, usually occurs bilaterally, but many cases of unilateral exophthalmos are seen.

Unilateral exophthalmos is usually due to a local affection of the orbit such as, fibroma, sarcoma, tumor of the optic nerve, retro-bulbar abscess or any abnormal condition which has a filling affect behind the globe. These cases should be investigated and of course, the treatment depends entirely upon the cause.

DACRYOCYSTITIS

Dacryocystitis is an infection of the lacrimal sac. The chronic cases complain of a swelling over the area of the tear sac which they can usually reduce by digital pressure which causes an expulsion of the pus through the lacrimal ducts back up in the conjunctival sac. This condition should be operated. The operation of choice is dacryocystorrhinostomy and the second choice is dacryocystectomy. When the latter operation is done, the eye will tear afterward until the lacrimal gland makes a so-called adjustment. In acute dacryocystitis there is marked tenderness, swelling and edema of the lids. The tear sac often ruptures spontaneously before the patient is seen by a physician. By using continuous hot compresses, either boric acid or magnesium sulphate, spontaneons rupture is often avoided. When the acuteness has subsided, then either of the above mentioned operations should be done.

PTERYGIUM

A pterygium is defined as a triangular fold of mucus membrane, which extends from the conjunctiva of the eyeball to the cornea, either at the inner or outer side of the latter. The blunt apex of the triangle lies in the transparent portion of the cornea and is solidly and immovably united to it. The base of the triangle spreads out in the conjunctiva of the eyeball and passes into it without any sharp line of division between the two. The cause of pterygium is usually considered to be that of a chronic irritation, as from exposure to dust, wind, sunlight, etc. Pterygia may remain dormant in an eye for years without causing any trouble, but sometime they will begin to extend farther across the cornea, the eye will become red and the patient complain of a burning sensation. A pterygium should be transplanted as soon as any activity is noted. If it extends any appreciable distance onto the cornea, a faint scar will result from the operation and this can be avoided by removing it early.

MUSCLE IMBALANCES

The general practitioner is usually the first one to see a child with crossed eyes or one of the muscular imbalances. They are usually seen, by the physician, when he is making a home visit to see a member of the family, and notices the child's eyes. Muscle imbalances should be treated early in life so that the vision in both eyes is maintained. If one eye should be crossed, the vision in the eye probably will not develop because of disuse. The cause of muscle imbalances can be due to refractive errors or to abnormal development of the muscles or abnormal innervation to the ocular muscles. These cases should be referred to an ophthalmologist as soon as they are discovered to determine the cause of the squint and to instigate proper treatment, whether it be the use of glasses, visual training or operation.

OPHTHALMIA NEONATORUM

Gonorrheal infection of the newborn has diminished greatly since the use of silver nitrate has been made compulsory by law. However, we do occasionally see an infection in the newborn and the diagnosis is not hard to make. The eyes usually become involved any time between the third and seventh day of life and the gonococcus is found by microscopic examination of the discharge. I have had good success in treating these cases by (a) boric acid irrigations as often as necessary to keep the eye free from discharge, (b) instillation of ½% silver nitrate solution twice daily and (c) sulphanilamide administered orally at the time of each feeding, every three or four hours, and the amount depends upon the weight of the infant; a good average would be 2.5 grains every four hours, and this is maintained until the eyes have been free of any symptoms for one week.

GLASSES

In conclusion, just let me say one word about the use of eyeglasses. I believe that there are too many people wearing glasses. If a person has fairly good vision and is free from headache, eyestrain, etc., I do not believe that that person should wear glasses. Many people who have practically normal vision, even though astigmatism or some other slight refractive error is present, are perfectly comfortable without glasses. Due to the activity, such as games and sports, of children and young adults, glasses are very apt to get broken and it has been my experience that it is usually more dangerous for a child to wear glasses than to go without them. Good vision in many eyes has been lost due to a fragment of lens entering the eye, which not only causes loss of vision, but disfigurement of the eye and often enucleation.

AMERICA AT WAR

AIDS TO DECONTAMINATION

I. Decontamination stations should be of simple construction with ample facilities for disrobing, bathing, and chemical neutralization. Persons contaminated with liquid vesicants must be treated within five minutes to avoid severe burns. Complete preparations would, therefore, require that facilities be sufficiently numerous so that every individual is within five minutes walk of a decontamination station. Gasoline filling stations are widely distributed and may be adapted for this purpose.

II. Suggestions for adapting gasoline filling stations for decontamination.

1. Use stations with washing and greasing facilities under cover.

2. Establish temporary disrobing area outside and adjoining washroom, shielded by canvas, parked automobiles or other device providing some privacy. Allow abundant natural ven-

TO THE WIVES AND DAUGHTERS OF OUR MEMBERS

Among the many responsibilities that you have acquired with the suffrage is that of making yourselves familiar with the great problems of public health. I do not mean, of course, that you should devote your lives to these problems, but that you should acquire a knowledge of them adequate to make you an intelligent voter and an intelligent promoter of all public or club meetings where questions of hygiene or sanitation are to be discussed. The medical profession differentiates itself from all other vocations in that its major aim is the public welfare, without any consideration of social standing, religious affiliations, or financial or political gains.

The slogan of the medical profession is "Prevention." Prevention means protection, protection of the masses, rich and poor, illiterate and educated, against disease and against physical and mental inefficiency which comes from faulty feeding, housing and ways of living; protection also of the ignorant and guileless against the charlatan and the paranoiac, the most despicable of imposters, who make their living by legally robbing their fellow men and often condemning their victims to an early death by robbing them of the time when a cure might have been possible.

Preventive medicine demands intelligent coöperation from the people and intelligent legislation. Therefore, the foundation of preventive medicine must rest upon education—education of the masses, education of the legislators and education of the judiciary in all matters pertaining to public health, and the support of the educated legislator or would-be legislator at the polls by every qualified voter.

The judiciary and often the legislators are chosen from the lawyers. Never miss an opportunity to put a lawyer right on any question affecting public health or medical legislation. Lawyers are usually good psychologists but often know nothing about sociology. This general education in all these matters is imperative. An intelligent, consistent and persistent effort in this manner will in the end save more lives and insure more happiness than any possible use of drugs can ever do.

The good which the wives and daughters of medical men of Pennsylvania and Delaware can accomplish by their earnest coöperation is incalculable.

Furthermore and right in line with this plea, I wish to urge you to subscribe to and to read the new lay journal of the American Medical Association—"Hygeia." It will be found to be interesting, instructive and profitable to all those who are concerned about health and efficiency for themselves, their families and their communities. The doctor's family should be his best recommendation and a model to the community.

L. L.

SPECIALISTS

The tendency of all the organizations on special lines, such as the American College of Physicians, American College of Surgeons, the American College of Ophthalmology and similar societies, is to require that candidates for membership shall have been in general practice for at least five years. This is as it should be.

The young student or tyro-interne sometimes gets a disproportionate sense of values and thinks that he has been ordained of God to follow some special lines because of the enthusiasm of a chief, accidental connection with some surgical cases or envy of some physicians who are financially successful in their practice.

We have known of some graduates who have been advised by their loving friends to adopt certain specialties because of the popular success of certain individuals. These friends forget that each physician must inject his own personality into his active life, and that because Dr. A., who might be very attractive in personality but poorly equipped professionally yet gains a large clientele, is successful, it does not follow that Dr. B., who may be better prepared professionally but lacking in the requirements that make for popularity or who is not a so-called good mixer, will reap financial prosperity.

The human nature side of the practice of medicine is but very poorly developed in the recent graduate in medicine. In former years a very valuable and essential requirement was that a medical student should have studied under a preceptor, who in his friendly manner could instruct the prospective student in the handling of the patient as an individual. During the past decade the medical college and interneship periods have been largely under the direction of teachers who are, as a rule, not in very close contact with the public as individuals. Their narrow viewpoint is to regard the patient as an interesting case of a certain disease; and the personal relation between student or interne and patient seldom results in the doctor getting close enough to his patient to have him unburden his heart, as always happened with the old fashioned, honest and humanized practitioner. The medical profession lost much of the finer side of the art of medicine when machine-made instruction was made the standard of so-called educational efficiency.

A. C. M.

PRACTITIONERS FOR THE FUTURE

WHY DAD DON'T WANT ME TO BE A DOCTOR

"Yes, Dad says he'd rather I took up some other vocation in life than medicine. You know my father is a doctor, and a darn good one, too! So you see, I've always thought I'd like to follow in his footsteps and practice medicine. Dad and I've always been great chums as I grew up, but now that I've finished high school he says he wants me to think about something else than medicine. He says he thinks the practice of medicine's one of the hardest professions there is, and he wouldn't study it again knowing what he does about it now. He says the specialist is all right and has it much easier than the general practitioner, but everybody can't be specialists. Night calls, bad roads, bad weather, long drives and poor pay, he says, make life a burden. Then, too, so many people—even when you give them the best possible service—don't appreciate what you do for them. So, I guess I'll take Dad's advice and study for one of the engineering degrees—don't know which just yet. Then when I get through I won't have to wait so long before I can make a living, as I would in medical practice; I'll be able to begin work before I'm grey-headed. It takes too long to get through medical college, these days."

Does this not have a familiar sound to many medical men, especially those who have sons and have had to meet the problem of what occupation they should follow?

There is, however, a more serious side to this problem that appears to many who are now in the practice of medicine. It is true that there are far more applicants for entrance into the medical colleges of this country than can be received by these colleges. It is also true that the great majority of applicants comply with whatever preliminary and premedical requirements are prescribed for entrance into the colleges. The trouble lies in the fact that the higher the requirements and the greater the length of time consumed in graduating from medical college and in completing the hospital year before a license is received, the greater the tendency for these graduates to locate in large centers of population. This condition is prevalent to-day and the tendency is increasing as the years pass. The smaller towns and rural localities are beginning to realize a lack of proper medical service.

The type of student body to-day is not the same type that was found on the benches a decade or so ago. There are fewer farmers' sons, fewer sons and daughters of those who reside in rural communities. The reason for this is the high cost of a medical education and the length of time required to complete the medical course necessary for a license to practice. The only other consideration in the way of business competition, if it might be so called, is the entrance of the cult practitioner whose preparation requires only a small outlay of time and expense.

Those who are largely responsible for doctors' sons avoiding the study of medicine are the doctors themselves. Are we, therefore, going on in this way until the history and traditions of medicine are lost sight of and commercial medicine only will be in existence? Many of us of the older school will regret the day when this comes to pass. We would not be alarmists, but do want to point out this growing tendency, which it is hoped may be corrected by those in authority before it is too late.

THE BUSINESS SIDE OF THE MEDICAL PROFESSION

THE PROGRESS OF WOMEN IN MEDICINE, FROM A BUSINESS VIEWPOINT

From a strictly financial point of view there is some question as to just how much progress women in medicine have made during the last generation or two. An address given in the year 1881 by Rachel L. Bodley, A.M., M.D., once Dean of the Women's Medical College, presents an elaborate report on inquiries made as to the success that the alumnæ had attained during the thirty years previous. Dr. Bodley's fifth question relates to the monetary value of the medical practice per year, and is answered by seventy-six women. All had made a living and more, while many had achieved handsome incomes, as shown by the following statistics:

24 made as much as $1,000 and less than $2,000
20 made as much as $2,000 and less than $3,000
10 made as much as $3,000 and less than $4,000
5 made as much as $4,000 and less than $5,000
3 made as much as $5,000 and less than $15,000
4 report sums varying from $15,000 to $20,000 per year.
10 report less than $1,000 per year.

The average income is found to be $2,907.30 for each of the 76. The four who report the exceptionally large sums are established practitioners and have reported the amount each year for several years.

These figures may probably be relied upon by the social statistician as a fair estimate of the income of women physicians, since many who contributed were careful to state that they gave

ease control measures influencing the war effort, epidemiology of syphilis and gonorrhea —1942, wartime venereal disease control education, research influencing the wartime venereal disease control program, and technics of venereal disease education.

Governmental, professional and health organizations represented at the Conference included: the War Department, the Navy Department, the Social Protection Section of the Office of Defense Health and Welfare Services, the American Medical Association, the American Neisserian Medical Society, the American Social Hygiene Association, State and local health departments, and the United States Public Health Service.

MILD TINCTURE OF IODINE

With the widespread interest in first aid instruction and the distribution of millions of first aid manuals throughout the country, the druggists have been swamped with calls for "Mild Tincture of Iodine, U. S. P.," which has been adopted for first aid treatment by the Army, the Navy and the American Red Cross. Since reports indicate that some druggists express ignorance of the existence of such a product, the formula for Mild Tincture of Iodine, U. S. P. follows:

	Metric Formula	Alternative Formula
Iodine	20 Gm.	146 grains
Sodium iodide	24 Gm.	175 grains
Diluted alcohol	to make 1,000 cc.	1 pint

Dissolve the iodine and the sodium iodide in sufficient diluted alcohol (equal parts of alcohol and water) to make 1.000 cc.

The label on this product should be somewhat as follows: Mild Tincture of Iodine. Contains 46 per cent alcohol. An antiseptic for application to cuts and wounds. There should also be a poison label followed by:

ANTIDOTE:—Give starch, white of eggs or flour mixed with water. Follow with emetic of mustard. Give strong tea, coffee, stimulants of diluted alcohol, whiskey or 1 teaspoon of aromatic spirit of ammonia in water. Demulcent drinks of flaxseed, if needed.

—*Ill. Med. Jo.*

EFFECT OF SHELTER LIFE UPON HEALTH

The health of many Londoners during the period of severe and prolonged attack from the air was affected by their stay for many hours at a time in protective shelters. It had been anticipated that shelters would be necessary, and many, though not enough, had been provided, but it was not foreseen that the continuous nature of the nocturnal attack would necessitate the provision of sleeping accommodation. In these places, for some weeks before bunks could be provided, people slept on improvised beds and in deck-chairs. One surprising complication was the onset in a number of cases of thrombosis of the deep veins of the leg and consequent edema of the ankle and foot, due to the fact that a person reclining in such a chair is apt to have his legs press unduly upon the lower transverse bar. The thrombosis is brought about by the continuous pressure with relaxed muscles.—*British Medical Journal.*

ALIEN PHYSICIANS

Refugee physicians were and are a sore spot in medical practice. Two years ago we had too many physicians in practice and the addition of refugee physicians to an already overpopulated medical practice gave considerable alarm. This applied as well to American-born physicians who had received their training abroad and who wished to return to their own country to practice their profession.

Properly qualified physicians are always welcome, and by properly qualified are meant medically, sociologically and personally. The big sticking point was the certification of medical qualifications. Many of the refugees were unable to obtain the proper certificates, others had certificates from medical schools and hospitals which had no established standards in this country and conditions in Europe precluded the possibility of establishing such standards. Standardization of American schools was won after a long and unpleasant battle, and Boards of Medical Examiners have finally become quite uniform in their requirements for graduates of American schools.

When this new and unpredictable problem presented itself, many of our Boards made, as requirement for a license to practice, an additional year in an approved American medical school or hospital. The few hardships were far outweighed by the safety from flooding the profession with undesirables.

Well and good, but now the picture has changed. It is considered that for civilian needs there shall be only one physician for every 1500 population. We have already felt what this means and we all know what is in store

for those who remain in civilian practice as far as hours of work and increased responsibility are concerned. Will we, then, let down the bars which were so carefully and thoughtfully built up? Undesirables as well as desirables will be granted licenses to practice medicine and we will be giving up a principle which we have promised to protect with our utmost zeal, that no one will be admitted to the practice of medicine who cannot furnish satisfactory proof of having the high qualifications which feature medical practice in the United States.

From this stand we must not retreat. Those refugee and alien physicians who are capable and willing to meet our requirements should have done so by the indicated procedure for the respective states. These we are glad to welcome, but those who are still hoping to obtain their licenses without fulfilling the requirements are no more welcome in these times of stress than they were two years ago. The civilian population must be protected as well as served and it is our continuing duty to see that whoever is to give civilians medical care must be properly qualified to render that care.

—*N. W. Med.*

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

At the meeting of the Staff of City-County Hospital Wednesday, August 19, 1942, the program was: Case of basal meningitis with cystic degeneration of left occipital lobe. Presentation by Dr. Gordon. Discusion by Drs. Epstein and Hart.

O. J. Shaffer, D. D. S., *Secy.*

A Staff Meeting of the Hotel Dieu Sisters' Hospital was held Tuesday, September 1, 1942 at 7:30 P. M .in the auditorium of the Nurses' Home.

The Program:

Gas Bacillus Infection complicated by Diabetes and Myocarditis. . Dr. Louis Breck.

Discussion—Dr. C. N. Giere, Dr. M. S. Hart.

Statistics quoted showed uniform success of x-ray used early in uncomplicated gas gangrene. In Diabetes all methods of control of gas gangrene fail to reduce the mortality under about 50% and when further complicated by arteriosclerosis the mortality is about 85%.

The speakers no longer use open operation in any case.

Anti Serum is used only as a protection against criticism rather than for its benefit—and only one dose—sometimes more. The Sulfa drugs only in mixed infection. Some authors say the Sulfa's reduce the value of x-ray.

A meeting of the El Paso County Medical Society was held September 14, 1942, at Hotel Cortez. The Program:

1. Duodenal Obstruction caused by Gunshot—Dr. L. E. Wilcox.
2. Blood-Bank.

Discusion opened by Dr. J. Mott Rawlings and C. N. Giere, M. D.

NOTICE TO EL PASO PHYSICIANS IN THE SERVICE:

Please notify Miss Hope Mason, 1026 Mills Building, El Paso, Texas, Phone Main 3450, your correct address, rank, etc., in order that we may send you notices of meetings of the El Paso County Medical Society.

Chas. F. Rennick, M. D.,
Secretary.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

At the Staff Meeting of Good Samaritan Hospital, Phoenix, August 24, the following program was given:

1. Opening Remarks by Chief of Staff, H. G. Williams, M. D.
2. Reading of Minutes of May Meeting.
3. Old and New Business.
4. Discussion of Surgical Problems, T. W. Woodman, M. D.

Scientific Program

1. Hospital Statistics, J. N. Ross, M. D.
2. Case of Singultus, L. B. Baldwin, M. D.
   Discussion: Howell S. Randolph, M. D.
3. Peptic Ulcer.
   a. Bleeding Peptic Ulcer, L. D. Beck, M. D.
   b. Syphilitis Peptic Ulcer, Leslie R. Kober, M. D.

   Discussion—
   General: H. A. McKeown, M. D.
   Surgical: Norman D. Hall, M. D.

The regular Staff Meeting of St. Joseph's Hospital, Phoenix, was held August 10, 1942. The following program was presented:

I. *Statistics for the month of July.*
   Presented by Dr. Lucy Vernetti

II. *Case of Subacute Bacterial Endocarditis.*
   Presented by Dr. John M. Schutter.
   Discused by Dr. Robert S. Flinn.

III. *Review of Cases with Diagnosis of Heat Prostration, Heat Stroke, and Heat Exhaustion.*
   Presented by Dr. Robert H. Stevens
   Discussed by Dr. Hilton J. McKeown.

AUXILIARY NEWS

Important Notice!

The post-convention issue of the Bulletin of the Woman's Auxiliary will soon be ready for publication. Besides interesting convention news it will contain addresses by convention speakers on plans and policies of the Woman's Auxiliary for this year with respect to its usual activities and their relation to national defense. *Most important of all*, it will present the programs of the departments of Hygeia, legislation, program and public relations. These programs will not be sent to you in pamphlet form as heretofore, therefore it is necessary for you to send in your subscription to the Bulletin at once.

Hygeia—The National American Medical Association health magazine, was given a prominent place in the window display by a local merchant of American flag designs on magazine covers for July. The broad bands of red, white and blue made a striking appeal for what we Americans stand—Freedom and Health.

Ask your dealers for a copy of *Hygeia*.

LANDONIA C. MILLS,
State President Arizona.
(Mrs. H. P.)

MISCELLANY

CLINICAL SYMPTOMS AND SIGNS OF GAS GANGRENE

The clinical symptoms and signs of gas gangrene are:

1. A painful wound.
2. Increased sensitiveness to the local tissue.
3. General malaise.
4. Restlessness to a degree of increased mental alertness maintained almost to the end of life.
5. Nausea and vomiting.
6. An increase of the pulse rate without corresponding increase in the temperature.
7. Swelling of a nonpitable tenseness and often palpable gas crepitations.
8. Musty or mouse-like smell to the tissues.
9. Thin, muddy, sero-sanguinous drainage, with or without bubbles of gas.
10. An Ieteric tinge to the sclera and skin from hemolysis.
11. Muscle of a deteriorating nature even to complete disolution.

The clinical symptoms and signs above noted are not absolutely diagnostic, for hemorrhage, shock or marked debilitation, and a less dangerous wound infection, can stimulate its development. Air, left in an operative wound or from a lung and chest wall injury, with later palpable crepitus, is stimulating to some deep thinking. It is well to remember that, within twelve hours, a severe infection can develop, and that a diagnosis is made, not upon clinical symptoms so much as upon physical examina-

tion of the wound area. Therefore, when gas gangrene is thought to be likely, two-to-four-hour examination should be made in the immediate postoperative or posttraumatic periods.

Bacteriological examination is confirmatory. X-ray evidence of gas is valuable in confirmation, but the presence of gas in the tissues without clinical evidence is not definitely diagnostic. Let it also be remembered that gas or air in tissues pass along tissue cleavage lines, between muscle and subcutaneous tissue, but more especially along the main blood vessels. The extent of gas has no relation to the extent of a possible gas gangrene; for example, in a calf-muscle group infection, gas crepitation has been palpated as high as the groin region in several instances.—*Calif. & West. Med.*

A WORD OF WARNING

When sulfadiazine was introduced to the medical profession, it was accepted with alacrity and enthusiasm. And small wonder, for early studies on the toxicity of the drug suggested that it had the desirable qualities of sulfapyridine and sulfathiazole but fewer toxic effects. There was less acetylation, the factor that made for urolithiasis, and hence it was a safer drug as far as renal excretion was concerned. This, together with its lesser gastrointestinal irritation, its less frequent and less marked cyanosis, and its fewer toxic effects on the bone marrow, led to a wide use of the drug. In some instances, lulled into a false sense of security, physicians may have given the drug indiscriminately and in doses excessive for conditions not warranting drastic treatment.

Reports of serious renal complications are now steadily accumulating. This was virtually predicted on the basis of animal experiments by two groups of laboratory investigators who demonstrated the frequent occurrence in rats of urolithiasis following sulfadiazine therapy. Now we have pathologic evidence in the human that acetylated sulfadiazine crystals may accumulate in the renal tubules, with degeneration and necrosis of the tubules and surrounding tissue. A zone of inflammation, associated with hemorrhage, may surround the deposited crystals. Anuria and death, as a result of this, have been reported in several instances. It seems that while acetylation of sulfadiazine is of a lesser magnitude than that of the other sulfa drugs, it may have a more damaging effect on the renal tubules and the adjacent involved renal tissue.

Two lessons are to be learned from these reports and their pathologic findings. Sulfadiazine should be used only when genuinely indicated and for as short a period as possible. Not only the blood but the urine should be frequently examined, preferably daily. When microscopic hematuria appears, the drug should be continued only in cases of dire necessity. If urinary secretion is decreasing, fluids should be forced, intravenously if need be, and alkalies should be administered for greater solubility of the crystals. If ureteral obstruction has taken place, early catheterization of the ureter should be done. The best treatment is prevention—by judicious use of the drug, and careful, expectant observation for danger signals.—*N. Y. J. of Med.*

PHYSICIANS IN CONTINENTAL U. S. (JANUARY 31, 1942)

Total Number			176,200
Ages: Under 36	42,700		
36-44	38,200	Total under 45	80,900
45-54	31,900	Total under 55	112,800
55 and over	63,400		
Scope of Practice			
General Practice			86,000
Full or Partial Specialists			90,200
Full Specialists (38,800 ; Partial Specialists (51,400)			
Auspices of Practice			
Private Practice (Some with part-time salaries)			141,500
Full-time Salaried Physicians			33,500
Hospital Positions			16,500
Including Administrators (3,100); Residents, Asst. Res. and Fellows (6,200); Interns (7,200)			
Government Positions			9,800
Federal (6,100 ; State (1,400); Local (2,300)			
Academic Positions (Teaching and Research)			3,700
Industrial Positions			2,300
Other Executive Positions			1,200

—*Jour. A. M. A.*

SURGEONS' CONGRESS, CLEVELAND, NOVEMBER 17 TO 20

The 1942 Clinical Congress of the American College of Surgeons, originally scheduled for October at the Stevens Hotel, Chicago, which was taken over August 1 by the United States Army Air Corps, will be held in Cleveland, with headquarters at the Cleveland Public Auditorium, from November 17 to 20, according to an announcement from the College headquarters in Chicago. The twenty-fifth annual Hospital Standardization Conference sponsored by the College will be held simultaneously.

AMERICAN BOARD OF OPHTHALMOLOGY

Because of the War Emergency, the Board announces the following additional examinations:

NEW YORK CITY—December 13th to 16th.

LOS ANGELES—January 15th and 16th.

At the last meeting it was decided to cancel the 1943 written examination, to include in the oral examination all of the subjects previously covered by the written examination, and to temporarily dispense with the requirement of case reports. The oral examination will probably require two or three days and will cover the following subjects:

External Diseases—Slit Lamp

Ophthalmolscopy

Histology-Pathology-Bacteriology

Ocular Motility

Refraction-Retinoscopy

Practical Surgery

Anatomy and Embryology

Perimetry

Therapeutics and Operations

Optics and Visual Physiology

Relation of the Eye to General Diseases

Formal application on the proper blanks for the December and January examinations must be filed with the Secretary not later than November 1st.

Write at once to: American Board of Ophthalmology, 6830 Waterman Avenue, St. Louis, Mo.

UNITED FRUIT COMPANY ASSURES VITAL BANANA DIET TO CELIAC SUFFERERS

The United Fruit Company has announced that it has made provisions so that all children suffering from celiac, a nutritional disturbance of late infancy and early childhood for which a diet of bananas is the indicated therapy, will receive priority for necessary supply of bananas, despite the present shortage of bananas brought about by the U boat activity in the Caribbean.

The Company, in response to queries from physicians and anxious mothers, has arranged to give priority on bananas to all celiac cases. In face of the scarcity caused by war conditions and lack of ships, the Company states that so long as there are bananas at all in this country, they will make every effort to see that such patients are supplied.

Anyone who is unable to obtain bananas for celiac sufferers is advised to have their doctor write or telegraph the Fruit Dispatch Company, Pier 3, North River, New York City.

BARBITURATES AVAILABLE FOR CLINICAL USE

Barbiturate	Status	Chemical Name	Average Adult Hypnotic Dose
			Gm.
Alurate	N.N.R.	Allylisopropyl barbituric acid	0.065-0.13
Amytal	N.N.R.	Isoamylethyl-barbituric acid	0.1-0.3
Barbital	U.S.P. B.P.	Diethylbarbituric acid	0.3-0.5
Dial	.....	Diallylbarbituric acid	0.1-0.3
Evipal	.....	N-methylcyclo-hexenylmethyl barbituric acid	0.25-0.4
Ipral Calcium	N.N.R.	Calcium ethyliso-propylbarbiturate	0.12-0.25
Neonal	N.N.R.	n-Butylethyl-barbituric acid	0.05-0.1
Nostal	N.N.R.	Isopropyl-B-bromallyl barbituric acid	0.1-0.3
Ortal Sodium	N.N.R.	Sodium n-hexy-lethyl barbiturate	0.2-0.4
Pento-barbital Sodium (Nembutal)	U.S.P.	Sodium ethyl (1-methylbutyl) barbiturate	0.1-0.2
Pernoston	N.N.R.	1-methylpropyl-B-bromallyl barbituric acid	0.2
Pheno-barbital	U.S.P. B.P.	Phenylethyl-barbituric acid	0.1-0.2
Pentothal Sodium	N.N.R.	Sodium ethyl (1-methylbutyl) thiobarbiturate	....
Phanodorn	N.N.R.	Cyclohexenylethyl barbituric acid	0.1-0.2
Sandoptal	N.N.R.	Isobutylallyl barbituric acid	0.2-0.4
Seconal	.....	Sodium allyl (1-methylbutyl) barbiturate	0.1-0.2
Thio-ethamyl	.....	Sodium isoamyl ethyl-thio-barbiturate	.....

—Jo. M.S. M.S.

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

CARCINOMA AND OTHER MALIGNANT LESIONS OF THE STOMACH: By Waltman Walters, B.S., M.D., M.S. in Surgery, D.Sc., F.A.C.S., Surgeon, Mayo Clinic; Howard K. Gray, B.S., M.D., M.S. in Surgery, F.A.C.S., Surgeon, Mayo Clinic; James T. Priestley, B.A., M.D., M.S. in Experimental Surgery, Ph.D. in Surgery, F.A.C.S., Surgeon, Mayo Clinic; and Associates in the Mayo Clinic and Mayo Foundation, Rochester, Minn. 576 pages with 143 illustrations. W. B. Saunders Co., Philadelphia & London, 1942. $8.50.

It is unusual to review a book by quoting its preface, but in regard to this volume, its preface so adequately describes it that I think one is justified. Likewise, it so adequately lives up to the promise implied in its preface, that this reviewer feels no better comment could be made. It is, accordingly quoted almost in its entirety.

"A review of all cases in which a diagnosis of malignant lesion of the stomach were seen at the clinic from 1907 to 1938, inclusive, was undertaken. A painstaking examination of the case record of each of the patients treated during this period for malignant lesion of the stomach was conducted with the assistance of Dr. Everett B. Lewis, Fellow and First Assistant in Surgery, the Mayo Foundation, 1935-1940 and the Division of Biometry and Medical Statistics, and the data extracted from the records were added to each primary punch card concerned.

In the period covered by this study, 11,000 patients for whom diagnosis of malignant lesion of the stomach had been made were examined at the clinic. Of these 11,000 patients, 6352 underwent operations of which 2840 were resections. The detailed review deals mainly with cases in which treatment was surgical. These cases include all in which malignant lesions of the stomach were present and in which operation was performed at the clinic, with the exception of a small number of cases in which the patients were operated on before institution of an adequate record system.

In the great majority (99 per cent) of cases the lesion was carcinoma; in only a small fraction (1 per cent) was lymphosarcoma or fibrosarcoma observed. In the operative group the decade fifty through fifty-nine years contained a larger percentage of cases of carcinoma than any other similar period (35 per cent); the decade sixty through sixty-nine years contained also a relatively large fraction of cases of carcinoma (29 per cent), and below and above these ages the proportion of cases of carcinoma decreased progressively. The mean age of patients who had carcinoma of the stomach was fifty-five years. The distribution by age for patients who had gastric carcinoma is almost identical for the cases in which resection was performed and for those in which only exploratory laparotomy or palliative operation was carried out. As a corollary of this, the relative proportion of cases in which the lesion was removable by resection is about the same (44 per cent) at all ages. Similarly, in the classification of both removable and nonremovable lesions, about 3.5 times as many male patients as female patients were affected.

This book contains a thorough review of malignant lesions of the stomach by the authors and their associates at the Mayo Clinic. These chapters have to do with roentgenographic diagnosis, gastroscopy, the clinical features of malignant lesions of the stomach, the indications for treatment, and the nutritional deficiencies associated with such lesions. There is a long chapter on preoperative treatment, selection of the anesthetic for a particular patient and a detailed presentation of the various types of surgical technic employed in the extirpation of malignant gastric lesions. The pathologic considerations are presented in two chapters, one by Dr. A. C. Broders and one by Dr. W. C. MacCarty. The post-operative treatment is thoroughly covered. Estimation of prognosis and end-results is accurate because of the very high percentage of follow-up studies that were made and calculation of survival rates covers periods up to twenty-five years subsequent to operation. There is a chapter dealing with roentgenologic treatment of inoperable lesions and a chapter on the operating room set-up from the standpoint of the surgical nurse.

—L. O. Dutton.

YOUR PERSONALITY—Introvert or Extravert? by Virginia Case: The Macmillan Company, New York: 1941.

It is all but certain that there is no greater problems before parents and physicians, who are the advisers of parents generally, than that of personal behaviorism. Any book or writing which purports to explain this problem therefore should be of interest to physicians. Virginia Case is a practical psychologist, even as

you and I, and she has attempted to do something to help those less well informed on these subjects than is she.

Miss Case went to that great authority on matters of psychology and learned at the feet of Carl Gustav Jung. She became keenly interested in Jung's theories of the classification of humanity as extraverts and introverts; and she expounds his ideas so that any reader should be able to gather a reasonable understanding of them.

It matters not whether one is an extravert or an introvert his tendencies may be held in check or they may be allowed to run riot. Of course the correct procedure is to hold excesses down to a minimum. If those who train children can be made to understand the problems much good will be accomplished.

Then, too, an understanding of other tendencies, which may not come strictly within the theory on the above mentioned classification, is suggested by this book and any reader too, should accumulate an understanding of the many behavior problems of the young and even of themselves which benefit all concerned.

The reviewer is deeply impressed with the importance of what this author is trying to do, and recommends this book to all physicians to be read by them and to be given to their patients.—*O. H. Brown.*

MANAGEMENT OF THE SICK INFANT AND CHILD, by Langley Porter, B.S., M.D., M.R.C.S. (Eng.), L.R.C.P. (Lond.) Dean Emeritus, University of California Medical School and Professor of Medicine; Formerly Professor of Clinical Pediatrics, University of California Medical School; Formerly Visiting Pediatrician, San Francisco Children's Hospital; Formerly Member Health Advisory Board of the City and County of San Francisco—and William E. Carter, M.D., Director of University of California Hospital, Out-Patient Department; Formerly Chief of Children's Clinic, University of California Hospital; Formerly Attending Physician, Los Angeles County Hospital; Formerly Attending Physician, San Francisco Hospital, San Francisco. The C. V. Mosby Co., St. Louis, 1942.

The sixth edition of this well-known text has been considerably re-written with many items brought up-to-date, particularly in the fields of nutrition, allergy, and pneumo therapy. The volume is divided into parts, part one concerning itself mainly with general considerations and symptoms. Part two has to do with specific disease entities and is especially valuable. By far the most useful part of the book is part three which has to do with methods. Under this all-inclusive term, detailed directions are given for an extremely wide variety of procedures applicable to the management of the sick infant and child—methods of intravenous injection of fluids, transfusion, immunization, methods of examining certain areas of the body, and the proper technique for the obtaining of specimens for laboratory examinations. The laboratory examination itself is given in detail in those cases that are especially important in pedatric practice, and x-ray methods are outlined. No procedure seems too small to be discussed in detail, even the proper method for giving an infant oral medication is described.

Supplementing this is an excellent practical guide to infant feeding. There is also an excellent section on drugs with many good suggestions and a long list of workable prescriptions.

This volume should be of great interest to pediatricians, but its most important usefulness should be as a reference book for the general practitioner who treats only a few infants and small children. Few questions could arise concerning treatment in this field that could not be answered from a search of its pages.

—*L. O. Dutton.*

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[1]*Fauley, G. B.; Freeman, S.; Ivy, A. C.; Atkinson, A. J., and Wigodsky, H. S.: Aluminum Phosphate in the Therapy of Peptic Ulcer, Arch. Int. Med. 67: 563-578 (March) 1941.*

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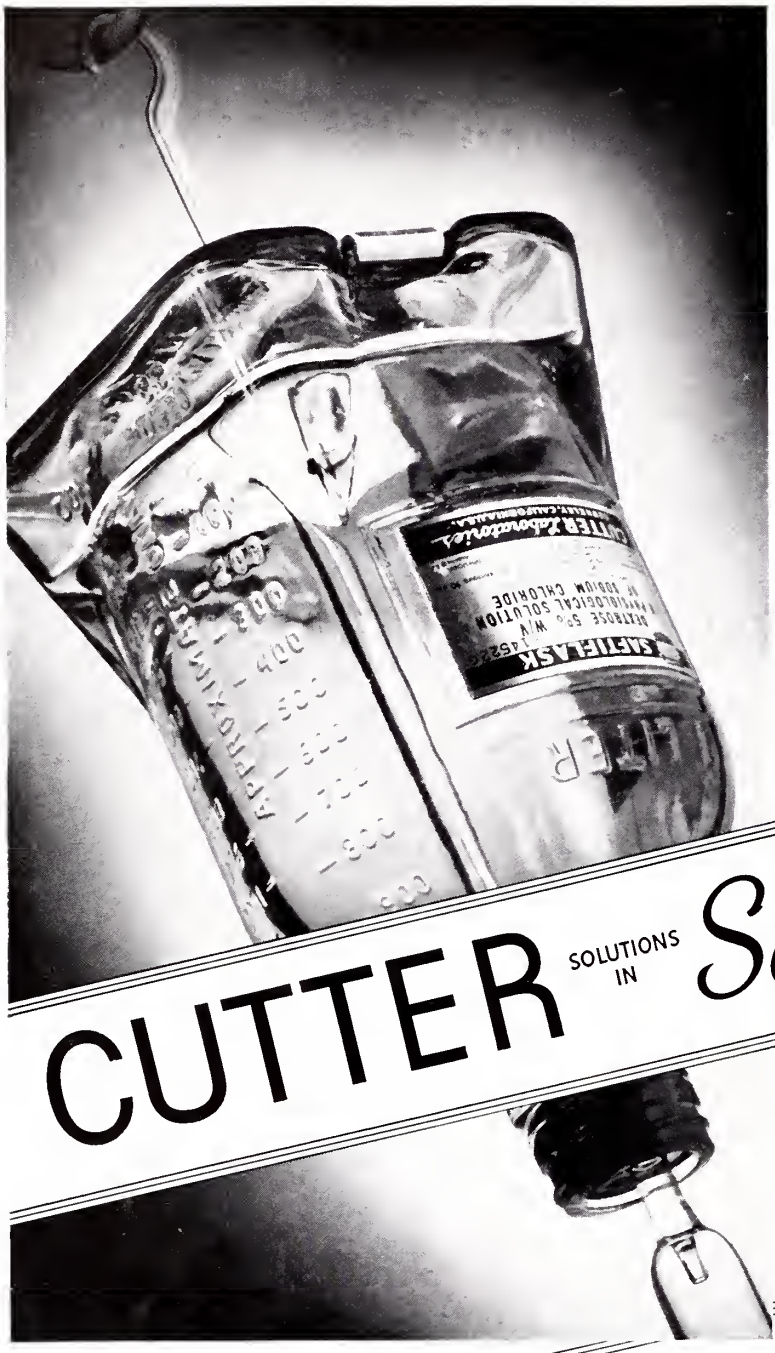

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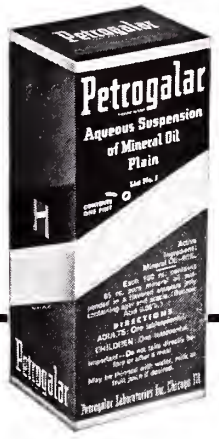

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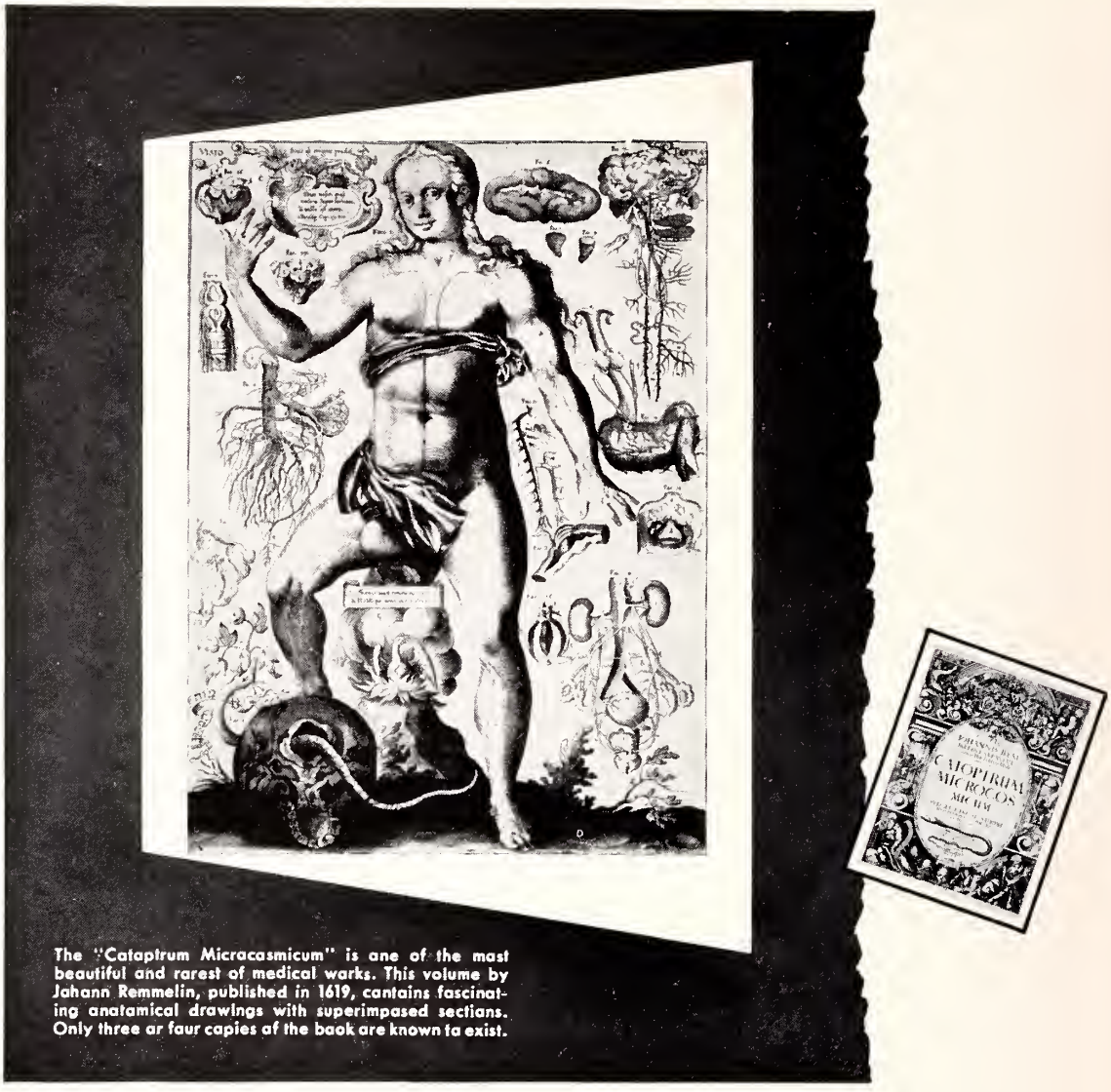

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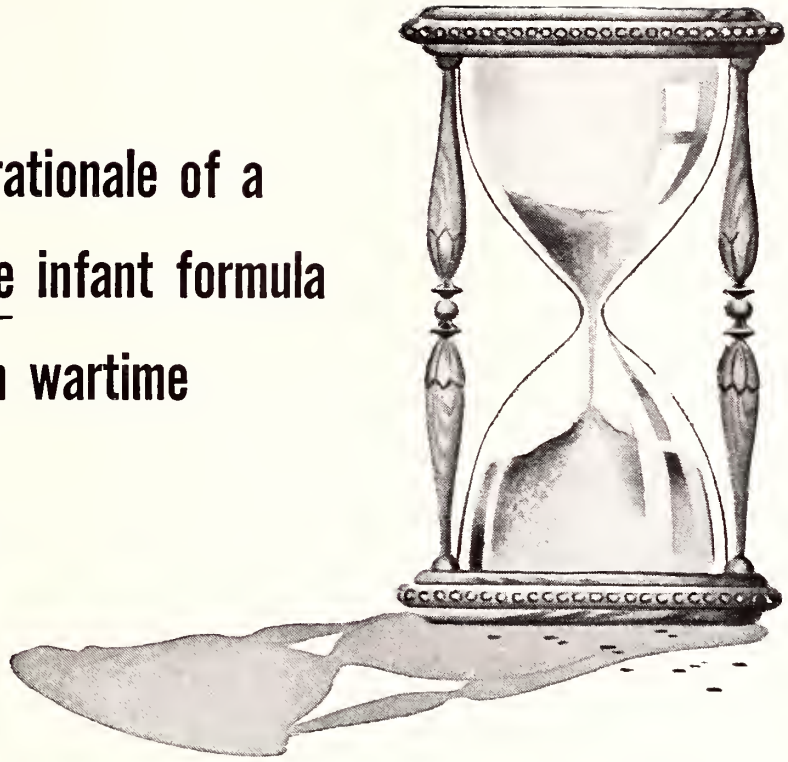

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** The Military Surgeon, Vol. 89, No. 1, p. 5, July, 1941*
J. A. M. A., 93:1110—October 12, 1929
Brückner, H.—Die Biochemie des Tabaks, 1936

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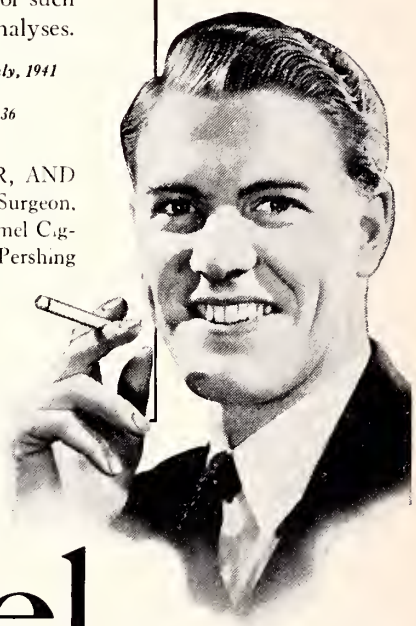

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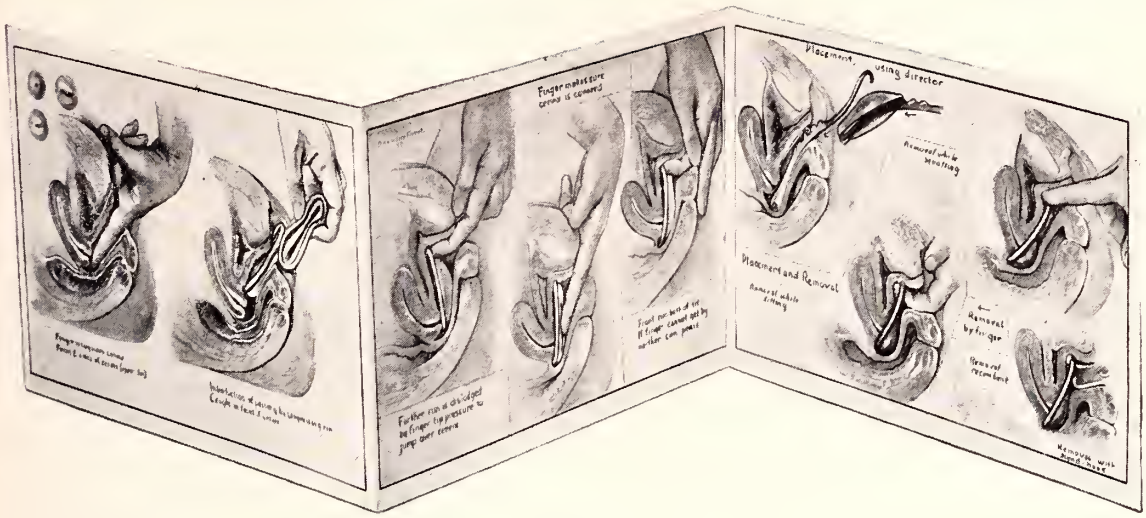

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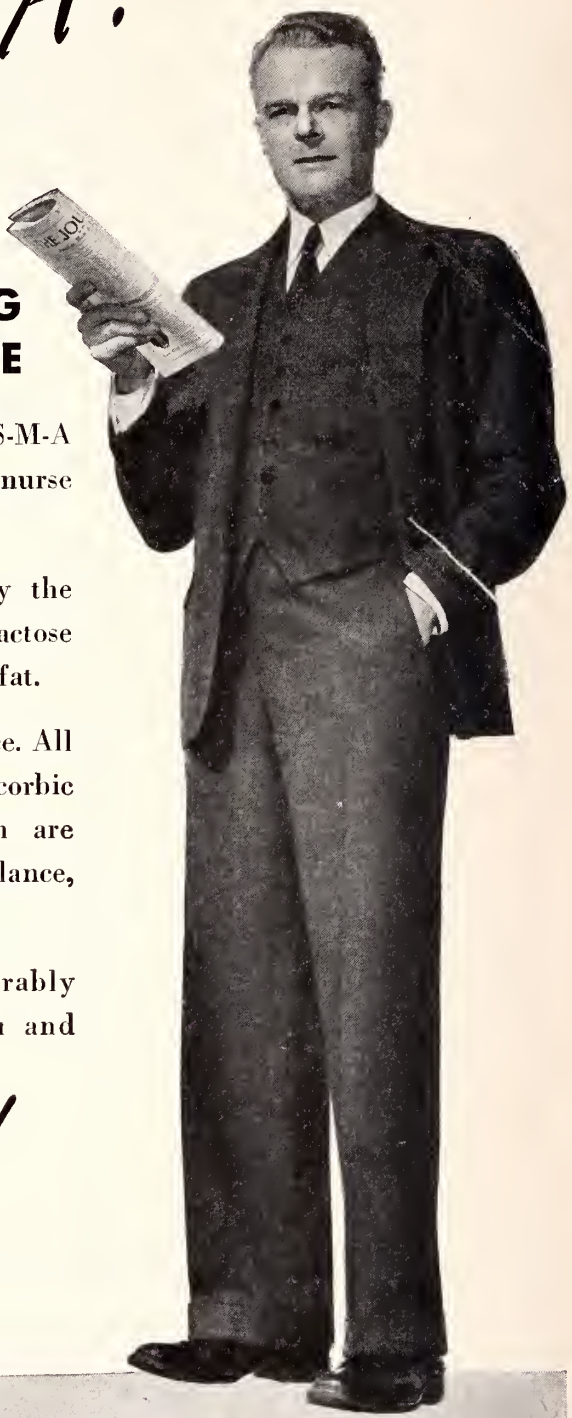

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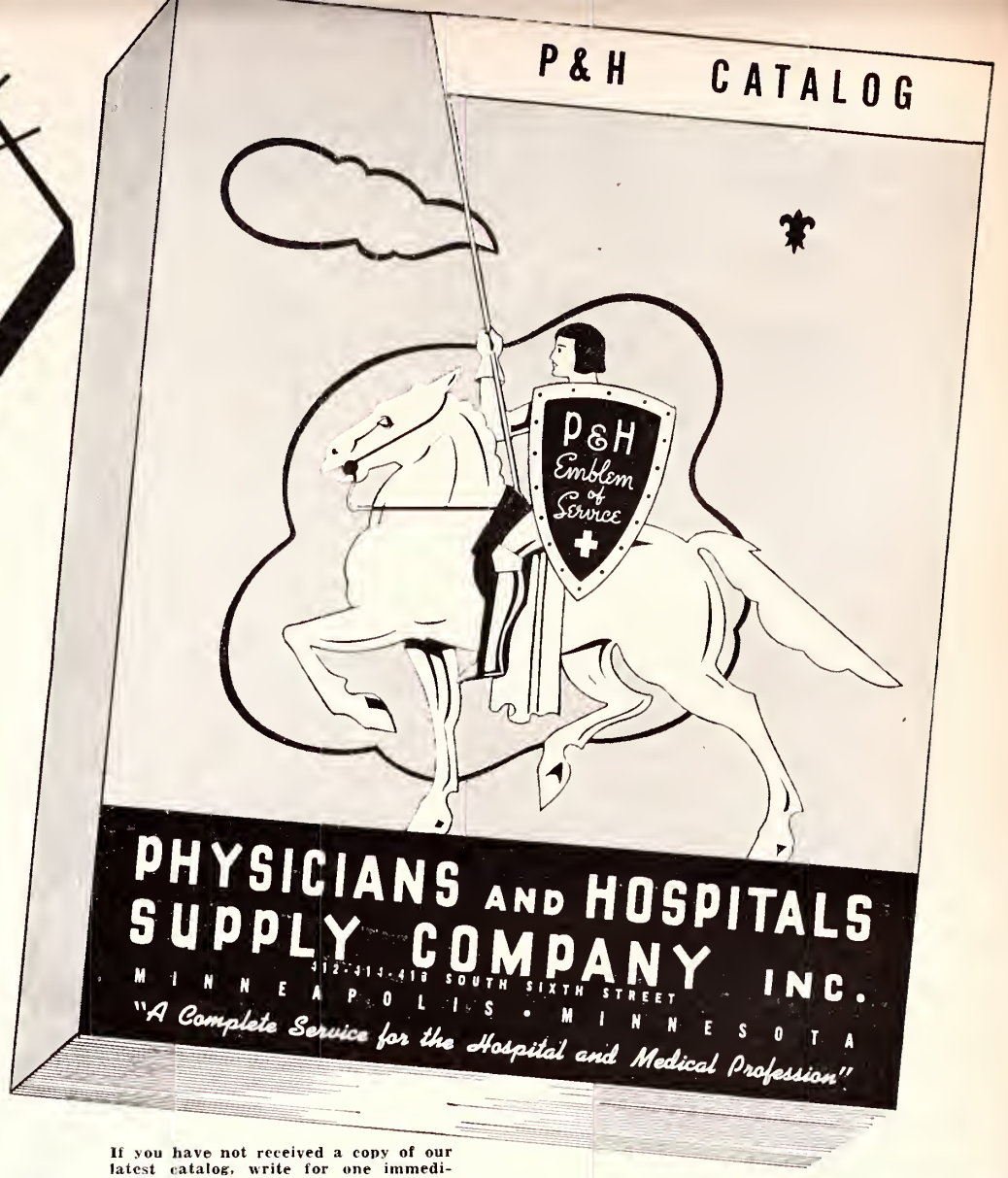
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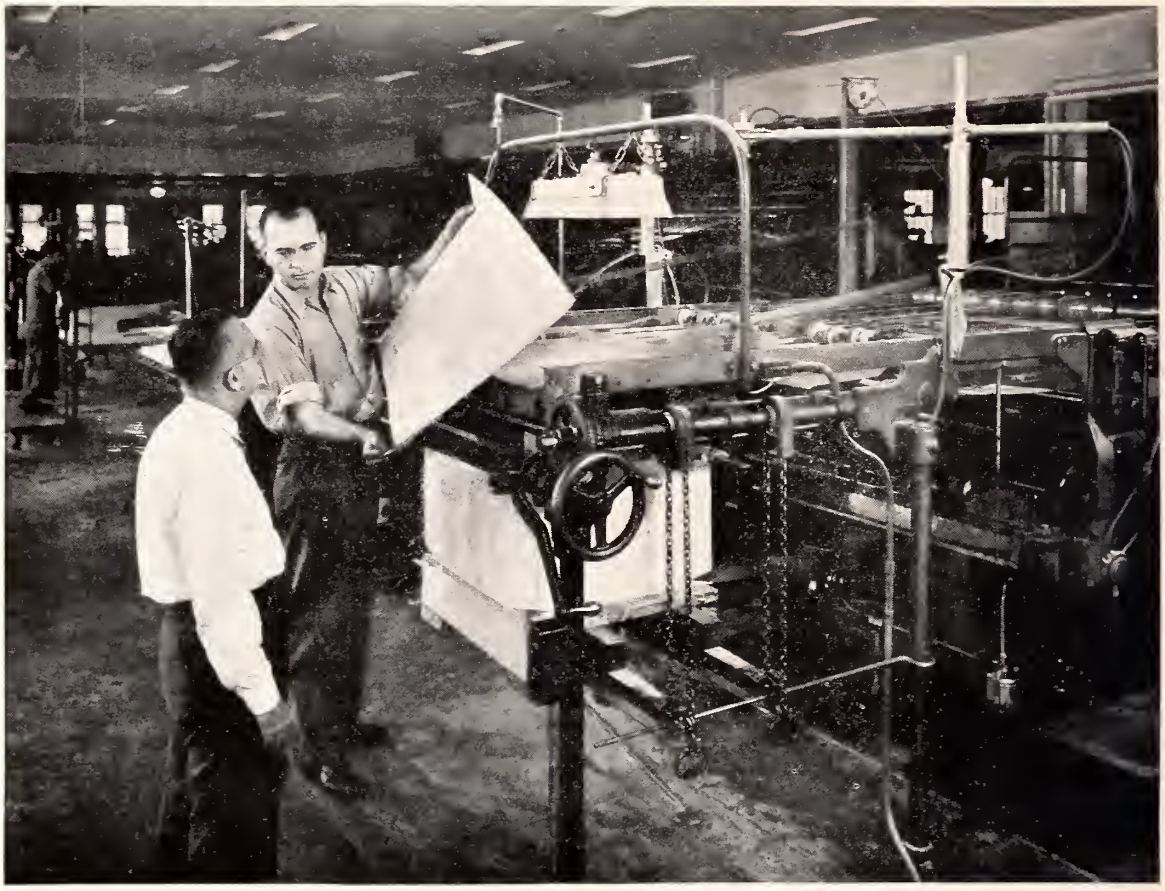

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SOUTHWESTERN MEDICINE

Vol. XXVI NOVEMBER, 1942 No. 11

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New Mexico Medical Society
Southwestern Medical Association
El Paso County (Texas) Medical Society

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As of the latter part of October, 1942, a total of 105 Arizona physicians were in Army or Navy service. Thirty-six El Paso doctors have gone to war. New Mexico has sent 81 physicians to the Army or Navy. When the small total number of physicians resident in the Southwest is considered, it is apparent that this area has to date contributed heavily to the demands of the armed services. More must go, however. And the sooner those eligible realize that the call is urgent, the sooner this war will be won. Meanwhile, it is with pride that we publish the current list of Southwestern physicians now serving the United States of America:

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Everyone knows that when a doctor leaves his home and his hard-won practice to enter the service of his country he may as well kiss that practice adios. It just cannot be any other way, for the doctor's services to his families are personal, and depend upon continuity for a great part of their value. So, when that continuity is interrupted the chances are good that the lost thread can never be picked up again.

Nevertheless, the problem of post-war adjustments between the returning doctors and their one-time patients has been the subject of much study by all concerned. As a partial solution, we rather like the procedure of the Ohio State Medical Society which posts cards in the offices of the doctors at home. The card says:

OUR OBLIGATION

Perhaps the physician who has been providing you with medical services is one of the many Ohio physicians now on duty with the Army and Navy.

While he is making this sacrifice for you and me, you may count on those of us who remain on the home front to do our utmost to meet your medical needs.

However, it is my sincere hope that when your doctor returns, you will resume your former relationship with him.

_____, M. D.

The Treatment of Hydronephrosis

FRANK HINMAN, M. D.
San Francisco

HYDRONEPHROSIS is the pathological condition of dilatation of the renal pelvis and atrophy of the renal parenchyma. It occurs only with obstruction to the outflow of urine. Although theoretically interesting and important, a discussion of the clinical aspects of the pathogenesis of hydronephrosis will be omitted. Back pressure, of course, is the initial factor, but the atrophic changes of the renal parenchyma are the result of anemia as well as presure.

TYPES

Clinically the types of hydronephrosis are divided according to the location and degree of the obstruction. An obstruction of a major calyx or one of its minor branches, for example, produces the localized condition of hydrocalycosis. A block at the ureteropelvic juncture produces the typical hydronephrosis, while that of the ureter produces the same pyelorenal changes together with alterations in the ureter above the point of its obstruction. An obstruction at the vesical neck produces the changes of back pressure in the bladder and, if mild and prolonged, changes in the ureters and kidneys may follow. The result may be bilateral dilatation and tortuosity of the ureters and bilateral hydronephroses (Table I), or the effect of back pressure may be on one side only, the opposite ureter and kidney remaining unaffected. In prolonged, mild types of obstruction, such as occur with median bars, it is not uncommon for a diverticulum to develop in the region of one ureteral orifice, which remains functionally competent, the ureter and renal pelvis above being unaffected, and for the other ureteral orifice to give way, transmitting the back pressure and causing the development of hydro-ureter and

From the Department of Surgery, Division of Urology, University of California Medical School. Presented to the Fifty-first Annual Meeting of the Arizona Medical Association at Prescott, Arizona, May 25-30, 1942.

TABLE I

Pathologic Changes of	From Obstruction of the Urethra	From Obstruction of the Bladder	From Obstruction of the Ureter (excluding ureteropelvic)	From Obstruction of the Pelvis (including ureteropelvic)
Urethra	Urethral changes dilatation diverticulum urinary extravasation	Vesical Compensatory Hypertrophy of Detrusor of Trigonalis Trabeculation Hypertrophy Cellules of the Diverticulum interureteral Dilatation ridge		
Bladder	Vesical Compensatory Hypertrophy of Detrusor of Trigonalis Trabeculation Hypertrophy Cellules of the Diverticulum interureteral Dilatation ridge			
Ureter	Vesical Right and Left Ureteral Hypertrophy Elongation Dilatation Angulation Adherent loops	Vesical Right and Left Ureteral Hypertrophy Elongation Dilatation Angulation Adherent loops	Right or Left Hypertrophy Elongation Dilatation Angulation Adherent loops	
Renal Pelvis	Right and Left Pelvis Hypertrophy Dilatation	Right and Left Pelvis Hypertrophy Dilatation	Right or Left Pelvis Hypertrophy Dilatation	Right or Left Pelvis Hypertrophy Dilatation
Renal Parenchyma	Right and Left Kidney Hydronephrosis (Primary atrophy) Infection Secondary atrophy Pyonephrosis	Right and Left Kidney Hydronephrosis (Primary atrophy) Infection Secondary atrophy Pyonephrosis	Right or Left Kidney Hydronephrosis (Primary atrophy) Infection Secondary atrophy Pyonephrosis	Right or Left Kidney Hydronephrosis (Primary atrophy) Infection Secondary atrophy Pyonephrosis

hydronephrosis on that side. When both ureteral orifices are affected, the bilateral hydronephrosis which develop may be equal or they may show great difference in degree. An obstruction below the neck of the bladder, such as that caused by urethral stricture, produces similar changes; first, of the bladder and secondly, of one or both ureteropyelorenal structures. It is obvious that the exact determination of the primary cause of a hydronephrosis is an important clinical obligation of the surgeon. The location may be calycal, pelvic, ureteropelvic, ureteral, ureterovesical, vesical, vesico-urethral or urethral, and the hydronephrosis may be unilateral or bilateral. In bilateral hydronephroses originating in the upper tract, the condition which causes the obstruction on one side may be entirely different from that causing the obstruction on the other. In obstruction of the lower tract, an obstructive condition of the upper tract may exist coincidentally or may have developed as a result of the block in the lower tract. Sometimes the clinical determination of this point is important because removal of the obstruction in the lower tract alone may fail to bring relief. A stone in the ureter maintains the obstruction or a dilated, elongated and tortuous ureter continues to slow up drainage from the kidney; the ureteral dilatation may have produced a valve-like condition at the ureterovesical juncture which itself becomes a secondary factor of obstruction. A diverticulum developing beside a ureteral orifice can so push aside the ureter as to obstruct it. This secondary factor would persist after removal of the obstruction (median bar) which was the initial cause of the diverticulum, the hydro-ureter and the hydronephrosis. The clinician, therefore, must determine not only the location of the primary obstruction but also the probable existence of coincidental and secondary factors of obstruction which have developed since the onset of the hydronephrosis. Equal in importance with the consideration of the cause and location of the obstruction is determination of the degree of obstruction which exists. It may, for example, be complete, partial, intermittent or temporary. Contrary to the idea previously held, complete obstructions rarely cause primary atrophy. As a rule, hydronephrosis develops in just the same way whether the block of the ureter or ureteropelvic outlet is complete or partial. This difference, of little importance clinically, exists, namely, that the hydronephrosis developing after a partial obstruction may reach much greater dimensions over a longer time than that which follows complete block. Huge hydronephrotic sacs containing many liters (17 or more) have been re-

ported following partial obstruction. It should be remembered also that hydronephrotic atrophy progresses more rapidly in old persons than in young, probably because of the vascular changes occurring with age. The size of a hydronephrosis, therefore, is no safe criterion of the degree of parenchymal atrophy, the main concern of the surgeon. Functional studies alone give reliable information on this point, and when these are not obtainable, the surgeon must rely upon gross pathologic changes.

PRINCIPLES GOVERNING SURGICAL TREATMENT OF HYDRONEPHROSIS

The surgeon has two obligations to fulfill before deciding on any line of treatment.

First, he must determine the cause of the hydronephrosis.

Secondly, he must determine as nearly as possible the functional ability and the reserve of each kidney.

Complete Diagnosis: The various conditions which cause hydronephrosis have been indicated. Most of them are discovered in the course of a routine urological examination. Suppose, because of his patient's complaint of pain or for some other reason, a medical man obtains intravenous urograms which disclose a hydronephrosis. This discovery so simply made is not a sufficient diagnosis. Retrograde pictures which might or might not duplicate the intravenous ones are not always required nor are they always sufficient. Rarely can any of the steps of a routine study be omitted. It is assumed that the reader is familiar with this routine and with the significance of the findings of each part of it. Discusion, therefore, will be omitted.

Renal Counterbalance: The second obligation of the surgeon, determination of renal function and renal reserve, is in need of clarification if the failure of most urologists to grasp its significance is any indication. Quinby's interpretation of the theory of renal counterbalance, "that when one kidney has been crippled by being made hydronephrotic, such a kidney will not resume activity again even if the hydronephrosis is relieved" is typical of this failure.

Let us review briefly the experimental facts upon which the theory of renal counterbalance is based and then restate the theory with a few practical illustrations.

In Table II are summarized the counterbalances reached after resections of different amounts of the renal mass. Such experiments demonstrate the remarkable native reserve power of normal renal tissue and its extraordinary ability to respond to stimulation by the development of hypertrophy. The renal units left intact function more actively and continuously than before and these units, glomeruli and convoluted tubules particularly, in time become hypertrophied under the influence of this increased activity. The compensatory hypertrophy of as little as one-quarter of the original mass may counterbalance the loss of three-quarters of it but the remaining renal tissue will have little reserve power and will prove insufficient if called on for more work.

TABLE II

Experiments on Compensatory Hypertrophy

Experimental Operation	Relative Renal Function Immediately Afterward*		Compensatory Hypertrophy (Counterbalance) Months or Years Later	
	Right	Left	Right	Left
	%	%	%	%
a. Right heminephrectomy	15	30	20	40
b. Right nephrectomy	0	30+	0	60
c. Right nephrectomy and later left hemi-nephrectomy	0	15+	0	60
	(The native, or functional, reserve will markedly increase this within a day or so, long before compensatory hypertrophy has occurred.)			

*Total renal work, 60%, each normal kidney doing one-half of this, or 30%.

In experimental counter balance renal insufficiency usually follows right nephrectomy and concurrent left hemilnephrectomy. If 2 months or so is allowed for left compensatory hypertrophy, however, before left heminephrectomy is performed, further hypertrophy will occur in the original one-quarter of the renal mass (one-half of the left kidney) so that it will be capable of doing all of the work. (Table I e.)

The second series of experiments (Table III) simulates closely many of the hydronephrotic conditions which require surgery, and the various types of counterbalance which these experiments illustrate also are found in practice.

DISCUSSION

In the foregoing tables are given the average functional readjustments of the remaining portions after the removal or destruction of renal tissue. Equal potentiality, a more or less equal reserve power, is assumed for commensurate portions. For example, heminephrectomy (Table II a) removes 15 per cent of total function (60 per cent). The remaining one-fourth and the

opposite one-half are both stimulated and if each side responds proportionately to the demand for carrying the 15 per cent increase of function, the side having one-fourth, which has now become one-third of the total mass, will eventually perform 20 per cent (15 per cent + one-third of 15 per cent); the other kidney, now forming two-thirds of the mass, will perform 40 per cent (30 per cent + two-thirds of 15 per cent. Many factors may modify this average. The kidneys may not have been equal in size or in functional reserve. An infantile kidney notably is lacking in reserve power, is working to its full ability and fails when called on for compensatory hypertrophy. Furthermore, the renal mass on one or the other side may have been injured by the surgical procedure or weakened by an antecedent, intercurrent or subsequent infection or other disease. Any of these factors may unbalance the relative responses to stimulation. The more capable side, even though much smaller, then would do relatively more work than the larger, less capable side and in time might entirely replace it. Necessarily, therefore, the average given above presuppose proportionate abilities and reserves of the right and left sides to respond to stimulation. The counterbalance after heminephrectomy as given above, 20 per cent and 40 per cent respectively, is quantitative, but qualitative differences of the opposed forces would greatly modify it. *Stimulation and the relative ability to respond to it are the essence of renal counterbalance.*

If the right ureter is successfully transplanted to the duodenum, the right kidney will show the same degree of compensatory hypertrophy as the left, although it performs no actual excretion since all of its work is nullified by intestinal reabsorption. Hypertrophy occurs in the left kidney as it would after righ nephrectomy.

In Table III are summarized the readjustments to the functional demands after varying amounts of the original renal mass have been destroyed by hydronephrotic atrophy.

TABLE III

EXPERIMENTS UPON HYDRONEPHROTIC REPAIR AFTER RELIEF OF URETERAL OBSTRUCTION

1. Complete obstruction of the right ureter near the bladder with ureterovesical implantation later and subsequent study of the ultimate counterbalance of the right and left sides.

a. The left kidney is not disturbed.

Right Ureteral Obstruction is Removed at the End of:	Relative Function Immediately After Removal of the Ureteral Obstruction		Final Counterbalance* Several Months Later (Permanent Until Disturbed)	
	Right, %	Left, %	Right, %	Left, %
(1) 2 weeks	About 15	About 40†	16†	43†
(2) 3 weeks	7.5	45†	10†	50†
(3) 4 weeks	4.0—	56+	4†, if healthy it may persist	56+

b. Left heminephrectomy (performed at the time or removal of the obstruction of the right ureter).

	Relative Function Immediately		Final Counterbalance of the Right Ureter Months or Years Later	
	Right†, %	Leftz, %	Right, %	Left, %
(4) 2 weeks	15—	20+	25—	35+
(5) 3 weeks	7.5—	22.5+	15+	45+
(6) 4 weeks	4.0	28	8†	52

c. Left heminephrectomy (performed several months after removal of the right ureteral obstruction).

Complete Obstruction Removed at the End of:	Renal Function a Few Days After Removal of the Obstruction		Renal Function a Few Days After Left Hemi-nephrectomy Several Months Later		Final Counterbalance Several Months After Left Hemi-nephrectomy	
	Right, %	Left, %	Right, %	Left, %	Right, %	Left, %
(7) 2 weeks	15 [See (1)]	40†	16 [See (1) final counterbalance]	22† (½ of 43%)	25 (16/38 of 60)	35 (22/38 of 60)
(8) 3 weeks	7.5 [See (2)]	45	10 [See (2) final counterbalance]	25†	17+ (10/35 of 60)	42+ (25/35 of 60)
(9) 4 weeks	4.0 [See (3)]	56+	3 to 4— [See (3)]	28+	7+ 4/32 of 60)	52+ (28/32 of 60)

d. Left nephrectomy (performed at the time of removal of the right ureteral obstruction).

	Renal Function a Few Days After		Final Counterbalance	
	Right, %	Left, %	Right, %	Left, %
(10) 2 weeks	15	0	55 to 60	0
(11) 3 weeks	7.5	0	30 (?)	(most animals die)
(12) 4 weeks	4†	0	Death in from 7 to 10 days	

e. Left nephrectomy several months after removal of the right ureteral obstruction.

	Counterbalance Before Left Nephrectomy		Function Immediately After Nephrectomy		Final Counterbalance	
	Right, %	Left, %	Right, %	Left, %	Right, %	Left, %
(13) 2 weeks	16 [See (1)]	43	30+ Markedly increased in few days	0	60	0
(14) 3 weeks	10 [See (2)]	50	20+ (Most animals survived with renal insufficiency)	0	40 to 50	0
(15) 4 weeks	4 [See (3)]	56	Most animals die in a few days. None regain 60% function			

f. Gradual left autonephrectomy produced by partial obstruction of its ureter (performed at the time of removal of the complete obstruction of the right ureter).

	Relative Function at the Time the Complete Obstruction is Relieved on the Right and a Partial Obstruction is Placed on the Left		Counterbalance from 8 to 12 Months Later, After Complete Hyrdonephrotic Atrophy of the Left Kidney Has Occurred	
	Right, %	Left, %	Right, %	Left, %
(16) 2 weeks	15	40	60	0†
3 weeks	7.5	45	60	0†
4 weeks	4†	56	50 to 60x	0†
6 to 8 weeks	(†)	60	(Death from renal insufficiency	

*It is understood that an intercurrent infection of either kidney has occurred at no time during the experimental period.

†It takes from 4 to 6 weeks for functional compensation, as after nephrectomy, and much longer for complete compensatory hypertrophy in a dog.

zThe left kidney has undergone some compensatory hypertrophy in the two weeks' period.

xProvided left autonephrectomy has been gradual, at least 12 months.

Getting equal stimulation, however, the right kidney also enlarges to the same degree, each performing 60 per cent, or total function. The dog now has the functional ability of four kidneys, 120 per cent. Transplantation of the right ureter to the skin, however, would result in 50 per cent bilateral loss of stimulation provided the forces opposed to each other were equal. In the final counterbalance, each kidney would excrete 30 per cent, or one-half of the total. Unilateral infection or back pressure would offset this result in proportion to the effect of this injury upon functional ability, and the final counterbalance would then be influenced by these qualitative factors. This is the important consideration in the surgical treatment of hydronephrosis. In all of the experiments of Table III the permanent balance of function finally reached between the right and left kidneys was unaffected by infection or hypoplasia. The point most clearly emphasized is the dependence of repair upon stimulation and upon the delivery of this stimulation gradually for the maximum effect.

A kidney injured by two weeks' ureteral obstruction will take over total function efficiently (Table III) after both the obstruction and the opposite kidney are removed, but one injured by longer obstruction (from 3 to 4 weeks) fails when the opposite kidney is removed, and the dog promptly dies of renal insufficiency. If several weeks pass after removal of the obstruction before nephrectomy is performed on the opposite side, thus stimulating repair more gradually, the kidney which has suffered three weeks' hydronephrosis will regain renal sufficiency. If the stimulation is delivered even more gradually by slow destruction of the opposite kidney (by means of partial obstruction of its ureter), the kidney which has the hydronephrosis of four weeks' duration eventually will bear the total burden easily.

A hydronephrotic kidney gets as much less stimulation for repair after removal of its obstruction as is taken up by the compensatory hypertrophy of the opposite undisturbed kidney which has been performing total function for the period of ureteral obstruction. The undisturbed kidney is stimulated in the same manner as a solitary kidney after removal of its opposite kidney. (Table II.) The repair of a hydronephrosis of 2, 3 or 4 weeks' duration, therefore, will not be so great after removal of the obstruction if the compensatory side is undisturbed, as it would be otherwise. The stimulation for repair is much less. Nevertheless, whatever repair occurs is permanent if the kidney suffers no subsequent injury from infection or imperfect drainage. Any injury of such a kind reduces its ability by transferring this additional stimulation for compensatory hypertrophy to the more capable, healthier kidney; such an unrepaired hydronephrosis in time may atrophy or become functionally incompetent.

This then is the theory of renal counterbalance: It is the relative response to the added stimulation brought impartially to each kidney after loss of function by one or both. It is the permanent repair and hypertrophy of the one side as compared to the other in response to this stimulation. It is an anatomical and functional readjustment to the loss of renal tissue on one or both sides, and the final adjustment between the two in the performance of total function occurs in proportion to the opposed number of functional units and their relative ability. There can be no counterbalance without two opposed renal masses (two kidneys) as a beginning. Renal counterbalance is the final division of labor between them. Disturb this adjustment and the process starts all over.*

In the surgical treatment of hydronephrosis the general problem is the choice between a radical or a conservative procedure. The most skillfully performed and technically perfect plastic repair of a unilateral hydronephrosis with a normal compensatory mate is the wrong solution if it fails to put this side in the position of potential ability to carry the total load should it ever become necessary. Clinical experience closely parallels the experimental findings in this respect. Less than one-quarter of the total renal mass will be insufficient. A hydronephrotic kidney which cannot perform 25 per cent of the total function, therefore, is not worth saving. If total function, as measured by phenolsulphonphthalein, is 60 per cent, the repaired hydronephrotic side should perform at least 15 per cent of the function. Under ideal circumstances this limit might be reduced to a borderline of 10 per cent. Any unilateral hydronephrotic kidney with a sound hypertrophic mate which can-

*After 20 years I see no reason to change the conclusions of the surgical significance of the theory of renal counterbalance presented before the American Association of Genito-Urinary Surgeons, (Transactions XV, 241-382, 1922), and The Kansas City Clinical Society. (The Archives of Surgery. 12:1105-1223. June, 1926.)

not excrete from 10 to 15 per cent of the total function should be removed. How can this point be determined? The estimation of relative function after the insertion of ureteral catheters is not always conclusive. There are any number of circumstances and conditions which may render a decision difficult, all of which must be carefully considered before coming to a conclusion. Are the catheters draining each renal pelvis adequately? If so, there will be no leakage around either one into the bladder, and the sum of the two will show a normal output. Is there any inhibition of functional activity on either side during the test? Before such a test patients should have been given fluids freely. Infection may inhibit activity. The too sudden relief of the obstruction may react to reduce the potential ability of the hydronephrotic side. Usually the capability of a hydronephrotic kidney is more nearly established by retaining the catheter a few days and repeating the functional studies, that of the good side transvesically. Retained catheters as a rule are required in the study of bilateral hydronephrosis. Unless inhibited by the foregoing or other conditions, however, a unilateral hydronephrosis will show its full capability on the first test. If the kidney is active and uninfected and draining freely through the catheter, the first test will be as good as any subsequent ones even though the catheter be retained for weeks. This is important An uninfected unilateral hydronephrosis should not be exposed to the very considerable risk of infection which a retention catheter carries. Preferably repeat the ureteral catheterization and study of relative functions. If they coincide, no more information about function is required. Remember that whatever function is shown by an uninfected, uninhibited hydronephrosis at this time is the maximum as long as the opposite kidney remains sound. A hydronephrosis infected to start with is another problem. I have tested repaired hydronephroses twenty years after surgery in patients with one normal kidney, and have found the relative function just about the same as it was at the first ureteral catheterization, no more, no less. The renal counterbalance, or functional readjustment, established by the surgical repair has remained fixed. The following reports illustrate the problem of surgical treatment of unilateral hydronephrosis with a normal compensatory mate.

Case I. A young woman had a large uninfected left hydronephrosis, with a function of from 3 to 4 per cent and a normal hypertrophic right kidney with a function of from 35 to 40 per cent (15 minutes, intravenous phthalein). She was treated for two weeks by the resident urologist of the County Hospital by means of retention catheter to the left kidney, to determine whether or not improvement of function would justify the plastic operation which the pyelogram showed to be quite feasible. There was no improvement of function on the left side although the catheter continued to drain perfectly. A fulminating infection of the left kidney appeared suddenly, and at autopsy a few days later a pure culture of B. Welchii was recovered.

NOTE: The gas bacillus infection, of course, is a very rare complication but this case illustrates the risk of retention catheters and the duty of strict asepsis by those who care for them. In unilateral, uninfected hydronephrosis it is better to repeat the study and not retain the catheter. Surely nephrectomy would have been right for this patient no matter how simple and feasible the repair.

Case II. A big, vigorous, young carpenter appeared in the clinic 10 years ago, complaining of pain in the right side. Urological study showed a moderately large hydronephrosis from ureteropelvic obstruction. Relative function was from 10 to 12 per cent on the right and from 28 to 30 per cent on the left, in 15 minutes. No infection was present. The plastic operation was successful. He was relieved of backache, and subsequent studies showed the foregoing figures to be a fixed functional counterbalance. Hypertension developed, however, two years ago and his family doctor sent him back for study, suspecting that it might be renal. The relative function had remained the same and there was no infection nor evidence of unilateral abnormality. Because of rising blood pressure, headaches and changes in the eyes, nephrectomy was finally decided on. Gross study of the removed kidney showed good repair and microscopically nothing notable was seen other than hypertrophic changes, yet his blood pressure promptly returned to normal and has remained so for eight months.

NOTE: There is every reason to suppose that after its repair this right kidney would have performed total function efficiently had it been called on to do so. What happened in it to cause renal hypertension is a question. Hypertension might never have developed had this kidney been stimulated to greater activity by gradual destruction of the left. On the other hand, this is the only instance within my knowledge in which hypertension followed the surgical repair of a hydronephrosis.

In treating *bilateral hydronephrosis,* hydronephrosis of a solitary kidney or unilateral hydronephrosis with an impaired mate, conservative procedures always are required. A study of the renal shadows and the pyelograms gives valuable information about the relative amount of renal tissue. A thin rim of parenchyma about a large sac does not promise much recovery of function. Nevertheless, stimulated to its utmost by renal insufficiency, a small mass may do an

unbelievable amount of work. Under these circumstances, conservation of every bit of renal tissue is imperative. With a great degree of destruction on one side and only a moderate amount on the other, so moderate that after repair the kidney could perform total function well enough, repair of the better side and opposite nephrectomy is logical. With more or less equal injury necessitating bilateral repair which seldom can be done in one operation, the second stage cannot safely be delayed too long since the side not operated on will be getting less and less stimulation as its mate repairs and thus be losing more and more of its own capacity for repair. In cases of severe renal insufficiency preliminary drainage by retention catheters, or by nephrostomy tubes when catheters cannot be passed or drain imperfectly, is a necessity. During this period studies of relative function together with the x-ray findings will establish a logical plan of attack which sometimes brings about a truly remarkable restoration of renal function. In a patient with advanced hydronephrosis, conservative methods are useless and nephrectomy is indicated. In conditions of bilateral hydronephroses with complete destruction on one side, the problem is similar to the treatment of a unilateral hydronephrosis with the opposite kidney removed and, as a rule, the functioning side should be operated on first. The three reports below illustrate the surgical problem of bilateral hydronephrosis:

Case I. A child of nine had had periodic attacks of abdominal pain with nausea, vomiting and fever, for three years. The urine showed only an occasional pus cell and, except the finding of a large palpable right kidney on physical examination, all the steps of routine examination showed no evidence of urogenital abnormality. This patient was interesting because this one finding was the only thing indicating the need for investigation of the urogenital tract, yet if this study had been delayed for any length of time the opportunity of restoring renal function would have been lost. The urological study showed a functionless right kidney and hydronephrosis developing on the left. A plastic operation was done on the left and the condition of this kidney, six years later, was good. Specimen removed at right nephrectomy showed the uselessness of any attempt at repair on this side.

Case II. This patient had bilateral hydronephrosis. At the first study the left kidney showed a mere trace of phthalein output as compared to 38 per cent output on the right during one-half hour. The plain x-ray film and the pyelogram indicated considerable potential parenchyma on the left and after exposure of the left kidney and its examination, this hope was confirmed and a plastic operation was performed. There was an immediate repair of function; study 3 months later showed 19 per cent on the right and 7 per cent on the left but there was 18 per cent leakage which retrograde pyelograms indicated came mostly from the left. A month later plastic operation was done on the right kidney and subsequent study showed 35 per cent function on the right with 20 per cent on the left.

Case III. A normal looking but nervous woman 50 years of age consulted me in 1921, complaining of frequency, pyuria and night sweats. Eighteen years previously she had had a nephropexy, since which she had suffered from recurrent attacks of cystitis. Her blood pressure was 120/80. The total phthalein output was 12 per cent and the test of relative function showed the appearance time to be 18 minutes on the right and 24 minutes on the left; 6 per cent of function was shown on the right, but only a trace on the left. There was no leakage. Pyelograms showed an advanced degree of bilateral hydronephrosis. The patient was treated by ureteral dilatations and retention ureteral catheters for various periods of several days each. On September 13 the test of relative function showed the appearance time to be 8 minutes on each side, with 22 per cent output on the right and 7 per cent on the left. The total phthalein output had gradually increased so that it remained consistently between 30 and 35 per cent. On October 3 a ureteropyeloplastic operation and nephrostomy were performed on the left. Twelve days later the total phthalein output was 55 per cent and remained so consistently for years. On January 25, 1922, a right ureteropyeloplasty and nephrostomy were done. Following this, the patient got along fairly comfortably though she had continued trouble from the left side and a persistent pyuria. The left kidney gradually lost function and in December, 1928, it was removed. It showed very little functioning tissue. In November, 1932, the total phthalein had dropped to 35 per cent and the blood pressure had begun to rise. In November, 1933, it was 200/100. In February, 1937, the phthalein test was reduced to 30 per cent and on November 3, 1938 the patient suffered a coronary occlusion. A complete autopsy was obtained. The right kidney measured 14 by 5 by 4 centimeters and weighed 230 grams. There was still considerable dilatation of the pelvis and ureter. Microscopic sections of the kidney showed small areas of fibrosis, lymphocyte infiltration and an occasional scarred glomerulus. *The rest of the parenchyma was normal.* The glomeruli were not remarkable and the arterioles were not sclerotic.

NOTE: This patient illustrates the remarkable resistance of renal tissue to prolonged infection and the wonderful hypertrophic repair of which it is capable. The improvement in function

of the left kidney following its repair and its gradual loss of function after repair of the more capable mate illustrates renal counterbalance.

The clinical problem of the treatment of hydronephrosis may be summarized as follows: Differentiation must be made between unilateral and bilateral cases. In a decision as to treatment in either group the important considerations are, first, determination of all causes of obstruction and associated conditions; secondly, determination of the potential reserve of each kidney; thirdly, tentative decision upon the correct procedure of treatment, and fourthly, confirmation of the foregoing decision by careful study of the conditions found at operation.

SURGICAL TREATMENT

The surgical treatment of hydronephrosis will be considered in the order of diagnostic subdivision:

I. Hydrocalycosis
II. Unilateral hydronephrosis
    1. Nephrectomy and ureterectomy
    2. Conservative therapeusis
        a. Ureteropelvic obstruction
        b. Ureteral obstruction
        c. Ureterovesical obstruction
III. Bilateral Hydronephrosis
IV. Hydronephrosis secondary to an obstruction in the lower urinary tract.

I. *Hydrocalycosis.* Occasionally, particularly in cases of renal lithiasis, the major calyx or an infundibular branch becomes obstructed and a hydrocalyx develops in consequence. Hydrocalycosis also arises from other causes, such as chronic infection. Such a dilated calyx may cause the persistence of infection and its resection sometimes is definitely indicated. The surgical problems involved are essentially those of hemisection of a kidney. Care must be taken, however, that all the portion of the renal parenchyma which drains into the dilated calyx is removed with it, otherwise a urinary fistula may persist. I have one patient now with such a fistula which has been draining small amounts of urine for more than two years with little diminution in the amount. This patient has a solitary kidney and has had numerous operations so that another one to close the fistula by further resection of the kidney seems inadvisable. A tube to the kidney is worn and a small bag attached to its end keeps him dry, very much as with a nephrostomy.

II. *Unilateral Hydronephrosis.*

1. *Nephrectomy.* The surgical removal of a hydronephrosis is more workmanlike when done without puncture or tear. If the hydronephrosis is infected, a clean intact removal is especially desirable. To accomplish a dry excision of a large sac requires a long incision and a good exposure. A more open operative field than that obtained by resection of the rib is achieved by forcibly raising the rib after division of the costovertebral ligament; this is practicable only with incisions parallel to the rib. Such an incision has the added advantage that it can be extended out through the abdominal wall, supplying an opening through which even the largest sac can be delivered. The peritoneum is in contact over a large part of the lower portion of a big hydronephrosis and, being thus stretched, is thin and easily torn. It must be freed gently and carefullly for the repair of such peritoneal tears is time-consuming, and even difficult because of this thinness. After delivery a large hydronephrosis must be well supported by the assistant while the surgeon is placing pedicle clamps, as it might tear loose by its own weight.

Drainage of the sac before freeing it, to permit the use of a shorter incision and give easier access to the pedicle, has certain distinct disadvantages in which the question of personal humiliation has no part. Complete removal will be found to be even more difficult than if the hydronephrosis is intact and often very uncertain as well, large portions of the sac sometimes being left behind. Fortunately these remnants rarely give trouble later. The surgeon, then, must balance the difficulties of intact removal against the disadvantages of removal piecemeal, as happens with huge sacs after being torn or drained.

Ureterectomy. Ordinarily in nephrectomy for hydronephrosis it is necessary to remove only as much of the ureter as can be easily reached. If the ureter is doubly ligated and divided, the remnant rarely causes trouble. This is true also of hydro-ureter, but in the presence of this condition it is well to have drained the distal end before ligating the ureter. In the exceptional circumstance of the ureter's being closed off near the bladder so that it will not drain into it, complete ureterectomy may be indicated. Whenever the remaining stump can drain into the bladder, it will rarely cause trouble if left.

2. *Conservative Surgical Therapeusis.* The discussion of urinary antiseptics, ureteral dilatations, abdominal belts for renal ptosis and oth-

er non-surgical methods will be omitted. It will be well briefly to outline here the technical principles generally followed today in the conservative surgical treatment of hydronephrosis:

(1) A proper incision with an adequate exposure so that the kidney can be freely delivered for examination and manipulation, is the first requirement. As mentioned above, an incision which parallels the twelfth rib and extends well toward the back, with division of the costovertebral ligament, gives the best exposure.

(2) All urologists with experience in plastic work are agreed that absorbable, fine catgut sutures are preferable to anything else and are best used with atraumatic or French eye needles. As close an apposition as possible of the sutured parts is striven for, but it is inadvisable to use a double row or more of sutures to obtain this. Better results are achieved by one row of sutures properly placed.

(3) Almost all plastic operations should be accompanied with adequate urinary drainage for the period required for healing. Nephrostomy has many advantages over pyelostomy or ureterostomy. This type of drainage, if performed properly, is direct and the tubes can be removed, cleaned and replaced at will. The disadvantage of a pyelostomy drain is that, once removed, it can rarely if ever be replaced. The technic of nephrostomy is important in that the tube should drain through one of the major calyces at the thin portion of the renal parenchyma, thus producing the least destruction of renal tissue. To place it properly, an instrument of some kind must be passed retrograde from the pelvis through this calyx so as to draw the nephrostomy tube directly into the pelvis. The tube which has been inserted from the outside and dissects outside the calyeal or pelvic mucosa, is not only worthless but an actual menace.

(4) The field of the plastic operation should have some internal splint retained for the period of healing. The most practical way of applying this splint is to insert it through the nephrostomy tube so that it passes several centimeters down the ureter. A number 8 to 14 urethral catheter of soft rubber is much to be preferred to the stiff ureteral variety. Furthermore, a drain of this kind should have an opening at the pelvic level so that the pelvic contents can discharge through it in either direction. This offers the advantage of permitting through and through irrigations of the pelvis to combat or prevent infection. This tube should not be withdrawn until it seems fairly certain that the plastic operation is thoroughly healed. Such a tube is retained, as a rule, from one to two weeks, or by some as long as three months, and the time for removal can be judged by the absence of leakage of urine through the rubber tube drain that has been placed behind the kidney down to the pelvis.

(5) It is usually well to fix the kidney in the proper postion before closing the incision, which can be done with a mattress suture of chromic catgut alongside the nephrostomy drain into the wall of the incision at the proper place. This insures not only good drainage through the nephrostomy but easy and safe replacement of the tube when necessary.

(6) After completion of the operation, before closure of the incision, a rubber tube with a number of perforations should be placed posterior to the kidney well down to the level of the ureteropelvic plastic operation. As a rule it is well also to place a wick drain beside it. This drain can be removed within twenty-four hours, but the rubber tube should remain and be replaced as necessary until after the nephrostomy tube has been removed. As a rule, it will be found practicable to have the drains come out at the lower end of the lumbar incision and the nephrostomy tube several inches above this, the muscles being closed at both sides of the nephrostomy drain. If the rubber drain and the nephrostomy drain are brought out alongside each other, subsequent attempts to replace the nephrostomy tube may meet the difficulty that it follows he track of the rubber tube instead of entering the kidney.

a. *The Surgical Treatment of Hydronephrosis Caused by a Ureteropelvic Obstruction.* Hydronephroses of this group are of two main types; in one there is constriction at the ureteropelvic juncture, in the other there is high insertion of the ureter into the renal pelvis, giving a valve-like obstruction. It is not always possible to determine the type by urological study. Upon determination of the existing condition after surgical exposure, the previous diagnostic findings should be reconsidered in connection with the situation found at operation. Can the obstruction be relieved without undue risk? Does the appearance of the kidney justify the belief that it alone could sustain life afterward? Satisfied in the affirmative, the surgeon must choose

the one of a number of different technical methods which seems best for this particular job. The methods most in use are:

(1) Simple division of an aberrant blood vessel, an obstructing band or adhesions at the ureteropelvic juncture is often found to be all that is required for the relief of the earlier degrees of hydronephrosis.

(2) The procedure next in simplicity is a longitudinal incision over the constricted ureteropelvic juncture with transverse closure by the Heinecke-Mikulicz technique.

(3) Schweizer first modified the Heinecke-Mikulicz procedure by making a Y incision, the arms of which extended into the pelvis.

(4) Foley later made an ingenious modification of the Schweizer Y incision, placing it posteriorly and extending one arm.

(5) A fifth method is lateral anastomosis after the method of Finney's pyloroplasty, a ureteropyeloneostomy, by which the opening between the ureter and the pelvis is widened. Any number of different modifications of this principle have been presented.

(6) Reimplantation of the ureter into the dependent portion of the dilated pelvis is often required. This was first done by Kuster as early as 1892.

The three procedures listed below have been used alone or with one of the foregoing:

(7) Resection of the redundant pelvis.

(8) Plication of the renal pelvis.

(9) Nephropexy.

So varied are the attendant circumstances that to obtain a true picture of the results of these conservative operations is difficult. In Dick's series of 60 cases there were 34 nephrectomies and 26 conservative operations. Of the 26 conservative operations the results of the 6 with division of aberrant vessels were good; in 10 reimplantations there were 3 failures; in 8 cases (of the 26) the hydronephrotic atrophy subsequently progressed; and two patients had reimplantation of a hydro-ureter into the bladder with good results. Thirty-nine of Riche's 54 patients were cured. There were no deaths in the group but 5 (or 9 per cent) required subsequent nephrectomy. In the 31 major plastic operations, 30 per cent of the patients showed a poor result. In Von Lichtenberg's 47 cases, secondary nephrectomy was required in 7 per cent and in Walters' 71 cases secondary nephrectomy was performed in 21 per cent. Of the remaining 46 patients, 71 per cent were benefitted.

b. *The Surgical Treatment of Hydronephrosis Caused by Ureteral Obstruction.* The commoner abnormalities of the ureter which cause obstruction of the urine flowing through it and which may occur at any level from the pelvis to the bladder are stone, stricture, surgical injury or ligation, kinks, extrarenal compression, and atony, either infectious, neurogenic or congenital (megalo-ureter).

The surgical problem of the ureteral stone which has led to the development of hydronephrosis is, early in the disease, simply the removal of the stone. When the hydronephrosis has become advanced, however, the problem is the same as that in unilateral hydronephrosis requiring nephrectomy, discussed above.

Many strictures of the ureter can be successfully dilated but for those that follow surgical injury or ligation ureteral re-anastomosis is often indicated, or, if this is not possble, the transplantation of the ureter to the other ureter, to the skin, or to the lower intestinal tract as a means of saving the kidney must be balanced against the advisability of doing a direct nephrostomy, which would need to be made permanent. Kinks of the ureter can either be straightened or a portion of this part of the ureter resected. Straightening of a localized kink usually is sufficient, but when the ureter has become markedly tortuous and elongated as well as dilated, simple straightening of the ureter, in itself a considerable surgical problem, will not secure good drainage. In 1929, I reported the results of partial resections of such tortuous ureters in a number of boys with posterior urethral valves. As evidence of the progress urological knowledge has made, none of these advanced obstructive ureterorenal conditions has been encountered in the last ten years.

Neurogenic disturbance of the ureter by interference with peristalsis and consequent stasis of urine sometimes leads to pelvic dilatation and, more commonly, infection. How often this ureteral affection occurs with spinal cord bladders and is itself a factor in the incidence of renal infection so frequent in these conditions is a cause for speculation. A brief report illustrates this point: Three years previously the patient had had a radical resection of the rectum for early cancer, following which he had urinary retention and had to have catheterization or a

retention catheter. Gradually he acquired the ability of emptying the bladder almost completely by straining with the abdominal muscles in the standing position, but there was always a residual of some 100 to 150 c.c., necessitating periodic catheterization daily in order to keep down infection. In spite of this routine, it soon became apparent that he was gradually losing renal function; phthalein tests showed this to be reduced to 5 or 10 per cent and the blood urea was rising. Complete urological study showed bilateral ureteral dilatation and hydronephrosis. Ureteral retention catheters brought the function promptly back to normal, but it was impossible to retain them satisfactorily and after their use severe infection ensued, for which bilateral nephrostomy was done. These nephrostomy tubes worked satisfactorily, and the renal function again returned to normal. Some months later metastases developed and death from carcinomatosis occurred promptly.

There is considerable doubt in the minds of most urologists as to the propery treatment of megalo-ureter which as a rule in unilateral. The two reports given illustrate the general methods which are followed:

Case I is that of a young married woman who had repeated attacks of urinary sepsis accompanied with pain in the side. Complete study showed a megalo-ureter with a fairly normal looking and functioning kidney above. Repeated ureteral dilatations, pelvic lavage, vaccines, etc., controlled the infection and relieved the pain and for 15 years this patient has been in comparative comfort.

Case II is that of another young married woman with an exactly similar complaint but the urological study showed an atrophic kidney above the dilated ureter with a function of only 6 per cent as compared to 35 per cent on the good side. Repetition of this study confirmed it and nephrectomy was advised. In hydro-ureters of this kind it is not necessary to perform complete ureterectomy.

In this connection, should be mentioned the surgical treatment of *hydronephrosis of the upper or lower half of a double kidney.* In these cases pain and infection may be persistent. The problem is very similar to that in hydrocalycosis, and resection of the hydronephrotic portion of the kidney with its dilated ureter is the treatment best suited to relieve it.

c. *The Surgical Treatment of Hydronephrosis Caused by Ureterovesical Obstruction.* A stone caught in the intramural portion of the ureter is the most common cause in this group and, as a rule, removal of the stone relieves the obstructive changes above. Inflammatory stricture is another cause of obstruction often seen, and persistent dilatations frequently relieve this. Ureterocele is a third common cause of obstruction and generally the fulguration or slitting of the cyst will relieve it. Abnormality of the bladder adjacent to the ureteral orifice is a fourth cause of ureteral obstruction at this point. Such conditions as diverticulum, tumor or vesical inflammation may cause obstruction. Extensive tuberculosis of the bladder is one of the commonest forms of inflammation causing ureteral obstruction and in these patients it is often advisable to treat the hydro-ureter and hydronephrosis as a problem distinct and separate from the urogenital tuberculosis. In many instances this condition is found in a non-tuberculosis kidney after its mate has been removed for tuberculosis. Failure of the bladder to heal and continuation of the vesical tuberculosis causes obstruction of the good ureter and development of hydronephrosis sometimes to the point of renal insufficiency. As a rule the first procedure indicated in these cases is nephrostomy. Many of the patients prefer to continue to live with a nephrostomy than to submit to further surgery, such as transplantation of the lower ureter into the bowel or to the skin.

For stricture, ureterocele and valve-like obstruction at the ureterovesical juncture, the suggested surgery of Hess might be indicated.

III. *Bilateral Hydronephrosis.* The clinical problem of bilateral hydronephrosis has been covered in the foregoing discussion of diagnosis and renal counterbalance. Conservation of renal tissue is the foremost consideration. The surgical treatment will not differ from the procedures given above for unilateral hydronephrosis.

IV. *Hydronephrosis Secondary to an Obstruction in the Lower Urinary Tract.* Removal of the obstruction is the first urological problem. The restoration of the ability to void freely and completely is the result to be desired. When such a result is obtained only in part, the hydro-ureter and hydronephrosis, whether unilateral or bilateral, progress. The problem then becomes a double one. Further attempts to remove the obstruction of the lower

tract more completely and to direct treatment of the upper tract by means similar to the proeedure given above become major problems to be considered. If the condition is unilateral, the choice lies between nephrectomy or conservation, if bilateral, conservation in the safest and surest way.

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Surgery of the Thyroid Gland

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PRESENT day surgery of the thyroid gland has been constructed on a foundation of knowledge gained by innumerable investigators in this and related fields, and an attainment of a broad view of its problems and achievements is well nigh impossible without at least an acquaintance with the principal steps of its development. The idea of this vital need is aptly expressed by Royster, who said, "Unless he knows something of what has gone before him, he knows very little of what is going on around him, he knows very little of what is going on around him, and can hardly visualize what may come to him."

With these few introductory remarks let us take a look backward over the road that has been traveled to arrive at our present state of knowledge. The very first record of anything pertaining to the thyroid gland dates back to a collection of Hindu religious practices written in India sometime before 1500 B. C. It contains an incantation to be recited by the priests of Buddha for the cure of goitrous patients. Another early reference dates back to 1600 B. C. in China where burnt sponges, and seaweed are supposed to have been utilized for the cure of goitre, the first empirical use of an iodine-containing substance.

The very first reference to surgery of the thyroid gland dates to 1550 B. C. in Egyptian medicine. In Eber's Papyrus it was written, "If thou findest in the patient's throat a fatty growth which resembles an abscess, but which yields to the peculiar sensation of softness under pressure of the finger, say to thyself I will treat this disease with the knife paying particular heed to the vessels."

Independent of Eastern civilization reference to the value of seaweed in goitre is mentioned in Chile. For centuries the inhabitants of South America have chewed the stems of seaweed under the name of "Palo-coto" which means goitre stick.

Pliny in the first century A. D. observed that only men and swine were subject to swellings of the throat which are mostly caused by the noxious quality of the water they drank.

Galen in the second century A. D. had a relatively clear conception of the thyroid gland, and was the first to attribute any function to it. Some of his anatomical observations were made on gladiators wounded in battle. Of the thyroid, he said, "The glands in the neck are of a spongy nature, and from them a humour oozes out, and trickles down, there being no necessity for ducts, which the other glands need, whereby the fluid may be carried." This is indeed one of the most remarkable observations of all time in view of the almost negligible knowledge of the anatomy of the gland which was possessed before Galen. This conception stood until the 16th century.

A very important recent discovery was unearthed in Chapter 33 of the Bamberg Surgery. The paragraph on goiter is copied directly from the "Pantequi" of the great translator Constantine, which is turn is a translation of "The Royal Book" written by Ali Abbas, a Persian

court physician, who died in 994 A. D., and who summarized the whole medieal literature of the Moslems. The operation described by Ali Abbas is as follows: "For goiter in which such medieation (seaweed and burnt sponges" is of no avail, surgery is necessary." "The skin is cut lengthwise, and the tumor is withdrawn with all the material adherent to it." If you wish to be certain of this you may cauterize with a large iron, the whole interior of the cavity from whieh you have extracted the goiter." Care should be taken that the pulse or the nerves are not injured in surgery of this kind. If, however, sueh an aeeident occurs, you should suture or ligate at eaeh side of the wound. After ligation the gland is seared, and whatever forms in the (hematoma?) is broken. If you do not wish to cauterize when the tumor is removed search diligently to make sure that nothing remains, for if anything remains it will form as before. When the region has been completely cleaned out, it is partly sutured, and red powder is applied. A cloth is placed on the wound and the treatment proceeds but without poultiee."

It is not uncommon after unearthing all the aforesaid work for the anatomists and artists to impart the idea of beauty, to goiter, and beeause of its beauty a goiter operation was seldom necessary. This idea prevailed in the Austrian Tyrol and some parts of Switzerland until the middle of the 18th eentury.

Up to this time no one spoke very much of the physiology as we know it today. Suyon, who based his ideas on pregnant women, spoke of the thyroid as a blood flow regulator necessary during parturition.

In 1746 Albrecht von Haller gave a final and eomplete description of the thyroid gland in which he made the first description of the thyroid-ima artery. By 1750 the macroseopie anatomy of the gland was completed. Among the many theories proposed to explain the cause of goiter, the most generally accepted from earliest timse was that it was caused by the drinking of water. Pliny in the first century believed this. The first recognition of the *element iodine* was made by Courtois in 1812 when he came upon the element accidentally while heating seaweed. Coindet ingeniously eoncluded that this element must be the aetive prineiple in all the substances, whieh had been used as goiter remedies.

His first publication appeared in 1820 in which he administered 5-20 drops of a tineture of iodine tid. He reported excellent results. By 1850 several eommunities, as that of Savoy, were giving iodine tablets to the school children, and were using the substance as powder in food, or in the form of inunction, or as "iodine neckties" worn during the night. Even at this time the dangers from the indiscriminate use of iodine were recognized and the practice was either abandoned, or modified until revived by Marine and Kimball for the prevention of goiter in 1917, and by Plummer for the treatment of toxic goiter in 1924.

The realization that the active agent of the normally functioning thyroid might be rich in iodine, Kendall isolated thyroxin in 1919, Harrington and Barger in 1926 discovered di-iodothyroxine as an intermediate in the biological synthesis of thyroxine, and in the same year succeeded in synthetically producing thyroxin[1].

The most rapid studies in the surgical treatment of goiter were made after the principles of Lister were put into practice by the Swiss, Germans, and Austrians, (1875-77) notably Billroth and Kocher. After the elimination of sepsis as the most important eausal factor of mortality, a relatively safe operative technic precluded an extension of indications for goiter, namely cosmetic reasons. In 1877 Billroth operated for cosmetic reasons, and by 1884 Kocher reported a mortality rate in 250 cases of only 2.4%. Early goiter operations were considered hazardous because of poor antiseptics and supervening "cachexia strumaprevia."

Kocher upon reexamination of his operated cases noted that some presented "cretinoid" symptoms, and hence the term "cachexia strumaprevia" or "thyreoprevia." Kocher then did only lobectomies. Miekulicz in 1886 devised a means hereby both lobes could be resected but a portion of gland in the vicinity of the inferior thyroid artery be preserved to prevent the untoward eonsequences seen by Kocher. Thus the way was paved for the standardized operation of today.

The American acceptance of antisepsis being late (1890) had up to the present made no important eontributions to the knowledge of goiter, or its treatment. Drs. Halsted, Mayo, and Crile, were conversant with the European men and knew of the hazards as the result of technical mishap[2].

The Americans improved the operation to make it relatively safe. Dr. C. H. Mayo performed his first operation for goiter on Dec. 13, 1899, and had completed his 5,000th goiter operation by 1918.

With a perfected technic it became increasingly more apparent that technic alone in extirpation of the gland did not cure hyperthyroidism. After a successful thyroidectomy, there usually stared in the doctor's face the acute post-operative crises with fever, tachycardia, profound restlessness, vomiting, prostration and coma. Obviously the post-operative reactions had to be controlled before the treatment of toxic goiter could be placed on a solid foundation. Accordingly as methods were devised for the control of post-operative hyperthyroid crises, three periods were developed in modern thyroid surgery, namely: (1) ligation followed by multiple stage and partial thyroidectomy; (2) period of trial and error, without the employment of preliminary measures to reduce the intensity of hyperthyroidism. Operative mortality as expected would depend upon the severity of the cases accepted for surgery. Mortality rates in different clinics averaged 6-10%. (3) The iodine era, when Plummer showed the value of iodine in preoperative preparation of patients with goiter. Mayo then reduced his mortality to 3%. Individuals now had goiters resected before severe hepatic and cardiac damage had taken place.

The revolutionary character of the changes following iodine administration both preoperative and post-operative has changed the attitude of the surgeon and the laity toward operation. In the preiodine period the surgeon nearly always was beset with the fear that in every case there might supervene an unexpected severe post-operative reaction, which he was at best powerless to control. But today after adequate preoperative preparation of the patient, the surgeon has every reason to believe that in all but a small group of complicated cases the patient will easily endure a primary subtotal thyroidectomy, provided that it is done expeditiously and without technical mishap.

ANATOMY

The surgery of the thyroid gland cannot be considered without a brief review of the anatomy. The thyroid is an unpaired gland situated in the neck opposite 2d, 3d, 4th and sometimes the 5th and occasionally the first tracheal cartilages. It consists of a right and left lobe united by an ithmus. The lobes are approximately cone-shaped, and have two blunt poles, a superior, and an inferior one. Occasionally a pyramidal lobe is found and is most commonly situated to the left of the midline.

On the antero-lateral surface the thyroid gland is convex; on the medial side it is concave, and surrounds the larynx, trachea, and esophagous as a horseshoe. The gland is invested by a fibrous internal capsule which is continuous with the middle cervical fascia and the fascia of the trachea, and larnyx to which it is bound. The external capsule is made up of the middle cervical fascia, which is continuous with the carotid sheath laterally, and below with the pericardium. Between the external and internal capsules posteriorily lie the parathyroid bodies, and recurrent laryngeal nerves. Immediately overlying the fascial covering of the gland are the sternothyroid muscles. The sternothyroid muscles overlie the sternothyroid and are situated more to the midline, and both of these are encircled by the middle cervical fascia. The medial portion of the upper pole is covered by the superior belly of the omohyoid muscles. Laterally lie the two stermomastoid muscles which in the normal gland cover almost completely the lateral lobes. Superficially there is encountered the superficial fascia, platysma, and the skin.

The blood supply is derived from the superior, and inferior thyroid arteries, and in about 10% of the glands from the thyroidima. The superior thyroid artery is the first branch of the external carotid, and divides into three branches, one to the isthmus, a smaller to the gland along the postero-lateral surface of the gland where it anastomoses with the inferior thyroid artery of the same side, and a small vessel supplying the superior thyroid body. The inferior thyroid arteries arise from the thyro-cervical trunk (a branch of the subclavian) and pass behind and close to the carotid sheath under the common carotid artery. Within the gland the inferior thyroid artery divides into an anterior and posterior branch, anastomosing with branches of the superior thyroid artery.

The lymphatics consist of a rich anastomotic plexus on the gland that traverse the inter, and intra-lobular connective tissue septa following mainly the blood vessels reaching eventually

the histological unit of the thyroid, namely the follicle.

The nerve supply is largely sympathetic derived from the superior, middle, and inferior cervical sympathetic ganglia accompanying the superior, and inferior thyroid arteries. From the perivascular plexuses, nerve fibers interlace in the connective tissue of the gland surrounding the follicles ending as knob-like structures in each epithelial cell. In this regard it might be stated that Cannon observed several years ago that severance of the sympathetic trunk high in the neck was followed by hemiatrophy of the gland on the side, and by a demonstrable decrease in iodine content of the gland[3].

The physiology of the thyroid gland in the light of our present knowledge concludes that (1) it is necessary for life and the development of the body; (2) it also regulates the rate of oxidative processes in the body; (3) it is effective in controlling differential growth.

THYROID DISEASES

The diseases of the thyroid gland represent a wide diverse range of disturbances illy defined from the normal, and from each other. With respect to the surgery of the gland each case is, and must be considered as an entity at the time of operation. On such a basis alone, can one attempt any form of classification of of a disease process which in its widest sense is only a portrayal of certain phases of the same disease in their unphysiological responses to the stresses and strains placed upon the human organism either by hereditary or the immediate environment. For the sake of clarity and simplification, and in harmony with the American Goiter Association, a workable classification is tenable, as follows:

I. Non-toxic diffuse
II. Non-toxic Nodular
III. Toxic-nodular
IV. Toxic-diffuse (Graves' disease)

The first three represent degenerative state, and as evidence of toxicity develops, there is recognized atoxicity of degeneration in which the entire gland is taking part. These changes are associated with certain variations and substages, particularly terminal, which may be called degenerative or cordio-toxic. The cardiotoxic, to use the words of Hertzler, should naturally follow the first three stages as a natural sequence. The diffuse toxic (Graves' disease) represents a totally different pathological process, characterized by extreme hyperplasia, the toxicity evidently due to this evident excess glandular activity. Therefore there are two great groups, the first three members in the group representing the toxicity of the degeneration, and the fourth group a toxicity of proliferation, which lends itself to speculative and investigative theorizing.

The fundamental fact of interest to the surgeon is the nature of the goitrous disease. To paraphrase—"Is the noise due to a player piano gone wrong or is it the result of a poor pianist playing on a good instrument? If the former, a good mechanic (surgeon) may hope to restore harmony, and if the latter, he is helpless." In the present day concept, he is both a good mechanic and helpless, and because of this duality many a notable controversial question develop.

As knowledge about the physiology and abnormal physiology of the thyroid accrues it is becoming more evident that hyperthyroidism is apluriglandular disease. The fact that women are more frequently affected in the ratio of 6 or 8:1 hints at the importance which the ovaries and anterior pituitary have in the causation of thyroid disease. The significant part played by the adrenal medulla, the Islands or Langerhans, the thymus, and the liver is brought about by the peculiar correlation which is found in Graves' disease. It is known and accepted physiologically that the thyroid hypertrophies and functions abnormally during pregnancy. The anterior pituitary has a thyroitropic hormone and an overabundance of this must have a definite relation to hyperthyroidism. The role of the adrenal medulla which whips the sympathetic system to increased activity not only causes the thyroid gland to secrete excessively, but also keys the entire body to a heightened state of functioning.

The role of the liver in hyperthyroidism is important because of its intimate relationship to detoxification and sugar balance. Kugelman concluded the liver fails to store glycogen, and that large amounts of stored levulose cannot be converted to glucose, a process easily accomplished by normal liver. Crile and his coworkers are convinced that hyperthyroidism is not basically caused by an overactivity of the thyroid gland itself, but that the over-activity is induced by the stimulation of the sympathetic

nervous system controlled by the adrenal medulla, which in turn is the result of high emotional stress under which we live. He seems to prove his point when he says that if hyperthyroidism were caused by dysfunction of the thyroid itself, or a change in the iodine molecule, or by dietary changes denervation of the adrenal could not convert a hyperplastic thyroid into a thyroid goiter, and could not dispell the symptoms of Graves' disease. But, denervation can do this.

There is little doubt in the minds of observers that simple diffuse goiter can be made smaller by the long continued use of iodine for periods as long as one or two years under supervision. These goiters are removed for mechanical and cosmetic reasons, and not for toxicity.

In non-toxic nodular goiter it is well to exercise care in the administration of the iodine. It has been noted as early as Kocher's time that excesses of iodine precipitated toxicity. This is a moot question today—Means of Boston stating that he has never seen a non-toxic nodular goiter become toxic from the administration of iodine. The indications for surgery in these cases are are follows:

(1) Pressure

(2) Cosmetic reasons

(3) Prophylaxis against neoplasm, the latter remark being severely criticized by the internists.

In toxic nodular goiter surgery is indicated, unless for other reasons. The ideas of Boothby and Plummer relative to patients with toxic nodular goiter not responding to iodine are no longer tenable. Most surgeons give iodine both pre-operatively and post-operatively. Fully fifty per cent respond. In view of the large number of goiters removed today this is considered good practice.

Dr. Blanek, writing on pre-operative iodine therapy in hyperthyroidism, reviews 200 cases of exophthalmic goiter and toxic nodular goiter, the object being to study the comparative lowering of the B. M. R., slowing of the pulse, and increase of weight in each type of hyperplastic. An almost parallel response was noted in the lowering of the B. M. R. and pulse rates. The average increase of the weight curves also showed a very similar response, but the parallelism was not so marked as in the declivity of the B. M. R. and pulse rates. In each type cases were noted in which the administration of iodine did not effect a depression of the B. M. R., lower the pulse, or result in an increase in weight. Hypothetically it is assumed from these studies that the factors operative in producing hyperthyroidism are the same in both the primary exophthalmic goiter, and secondary adenomatous goiter[7].

SURGICAL ASPECTS

A few words about the optimum time to do surgery and when to leave patients alone. Surgery is indicated at the time the B. M. R. has either reached normal or approximated its lowest level, or at the time (early) when the B. M. R. has tendency to rise to its former height. The best response to iodine is at three weeks. Rare, exceptional cases reach a normal B. M. R. and remain normal on iodine. When the hyperthyroidism is stubborn and profound, and iodine does not do any good, put the patient to bed for one month.

In exophthalmic goiter the natural history of the disease is of value in deciding therapy. Clinical experience bears out that there is (1) the acute fulminating hyperthyroidism that goes on to a rapid demise without recognition in some cases, and despite what therapy is employed, (2) the type that runs its course, becomes spent, and reverts to the myxedematous stage of hypothyroidism, (3) those cases that present a hyper- and a hypo-thyroid syndrome but with an elevated B. M. R., (4) cases with spontaneous remission. In Graves' disease the highest B. M. R. is found, and on that basis attempts have been made to evaluate therapy. Those cases in which the B. M. R. is 70 plus, iodine prel and post-operatively with subtotal resection of the gland offers the best hope of cure. Those cases with B. M. R. between (35-70) iodine, surgery and radiation offer the best chances of eradication of the disease. The choice of surgery lies in the intermediate group whose B. M. R. ranges between 35 and 70, for it is this group that can be brought to levels of comparatively safe operability with iodine. With a B. M. R. of 70 or above caution is the key word, and radiation is favored by some men. Surgery may be the swiftest and most economical treatment, but is by no means the last word. The economic status of the average patient decrees in a sense the type of treatment to be given. Surgery takes three weeks, radiation three months plus, and others means, an indefinite length of time.

In the actual surgery of the gland, the question of how much gland to resect constitutes the prevailing weakness of the surgical approach. However, it is conceded good judgment to remove praetieally all of the gland in those cases with a high metabolic rate, and in severely toxic cases. In these cases post-operative crises are in inverse proportion to the amount of gland removed at operation. Spontaneous myxedema induced by total thyroidectomy is more easily controlled than hyperthyroid crises. Thus we see that the operability of goiter is a vexing problem calling for the exercise of the greatest care and clinical judgment based on a knowledge of the response to iodine, recognition of the type of goiter, and the economic status of the patient[6].

J. L. DeCourcy, writing in the Archives of Surgery, states that sudden deaths still occur on the table. In his series of 8,000 thyroidectomies he has had five such deaths. Confining his remarks to the use of iodine pre- and post-operatively he states that those cases which attempts have been made to bring about a cure of hyperthyroidism with iodine alone are the more hazardous to undertake when surgery is finally decided upon, because these cases become "iodine fast" and do not receive the temporary improvement seen where no previous iodine had been administered[8].

Sir Geoffrey Keynes, writing on the surgical treatment of toxic goiter[9], believes that the development of a precise expeditious technic plus a choice of anesthetic agents has made the operation of thyroidectomy a more safe procedure in combination with sensible iodinization. His preference is for some form of basilar narcosis with avertin followed by infiltration anesthesia, with ½% novocaine. Paraldehyde and pentobarbital sodium are popular as adjuvants to local anesthesia.

Practical thyroid surgery, all other things being equal, depends upon the following for its good results:

(1) Operation should be drastic. Hemi-thyroidectomy has an excellent immediate result, but the patient will always suffer a relapse later. In all cases, except the milder types of disease, at least 9/10ths of the gland should be removed. This applies to the primary toxic goiter in which the gland is very active and able to regenerate. The secondarily toxic goiter, usually nodular, is not so active in proportion to the bulk of the gland, thus more can be left behind.

(2) Those parts of the gland that are to be left behind should be chosen from the posterior borders of each lobe in such a manner that the recurrent laryngeal nerves and the lower parathyroid bodies are left undisturbed. The whole of the isthmus should be removed, leaving the trachea exposed, otherwise an unsightly lump is likely to be visible afterwards in the middle of the neck.

(3) The operator must never approach the operation with the fixed idea of completing the operation at one sitting. The interruption of a thyroidectomy when only one side has been done is life saving. Appreciation of this one point relieves the surgeon that he must proceed with extreme speed, sacrificing safety. If the right kind of anesthesia is used, speed is not so likely to be an important consideration.

(4) "Operation in stages" ligature followed by hemi-thyroidectomy and later by the final stage is becoming more rare. Ligation is reserved for such patients in which even hemi-thyroidectomy would be dangerous because of the extreme illness. The recognition of the case for preliminary ligation will often convert a highly dangerous operation into a reasonably safe one even though the thyroidectomy will subsequently have to be done in two stages.

(5) Cosmetic affects are best obtained by the low collar incision with lateral drainage from the extremities of the wound with no undermining of the lower flap.

E. Runzi of Vienna stresses the need for preliminary X-ray and laryngoscopic examination. By the former an unexpected substernal or migrating goiter can be found; a lateral view may show compression by a hidden posterior nodule. It shows as well as the state of the tracheal wall, calcification of some nodules, and the fixity of the goiter, and enables useful exploration of the anterior and posterior dediastina. Direct laryngoscopy permits the state of the mucosa of the larynx to be verified, and further to detect recurrent paralysis, or the presence of a nodule in the trachea[10, 11].

Purely statistical studies on the result of operations on the thyroid glands are numerous, and these statistics vary greatly in clinics both as a result of the type of case seen and of the geographic situation in respect to the

goiter belts. In the analysis that follows we accept for study the statistics presented for the most common types of thyroid disease[12].

Simple endemic goiter, and simple adenoma meet the surgeon where the consideration is primarily the removal of a large mass of tissue, which by compression of the trachea and great vessels causes dyspnea, choking, and smothering sensations. The huge endemic goiter commonly observed in goitrous regions usually displaces the neck muscles outwards and expands its growth energy in this direction, such that there are relatively few symptoms of compression. Nodular goiters, though of a smaller size, may, on the other hand, produce serious obstruction of respiration, or of the veins of the neck, by growth inward against the trachea or downward into the thorax. Substernal goiter, which is the most dangerous in this respect, nearly always is the result of downward growth of a normally situated thyroid, and is sometimes believed to be an enlargement of a true ectopic mediastinal gland.

In the series of 8,000 cases operated at the Cleveland Clinic, preoperative paralysis of a laryngeal nerve was found in .01 per cent of the cases. Malignancy showed in 2 per cent of all goiters removed at operation. A preoperative diagnosis of the malignancy of the thyroid is made on only 50 per cent of the cases. Therefore, in 1 per cent of all patients subjected to thyroidectomy, malignancy is present, though unsuspected before operation. In addition, since about 50 per cent of all goiters removed are of the diffuse type—a type in which malignancy is rare—it follows that the chances that a given goiter may show unsuspected malignant change are nearly doubled, if the goiter is of the nodular type. The estimated incidence of undiagnosed malignancy is roughly 2 per cent.

The picture of hyperthyroidism is known to everyone practising medicine, and it is necessary to distinguish the syndrome in youth and in old age. In children the picture is usually a clear-cut full blown picture of hyperthyroidism. The problem in the child, more so than in the adult, resolves itself into controlling excessive emotional instability. It is important that the child have no suspicion of contemplated surgery unless old and stable enough to cooperate. Avertin here has been of definite value, a child's tolerance for the drug being fairly high. The picture of hyperthyroidism in the aged is one of sharp contrast to that seen in the youth. The hyperkinetic syndrome is replaced by exhaustion, emotionalism by delirium, and simple tachycardia by auricular fibrillation with decompensation, with superadded changes of senility affecting the circulation of the myocardium and the brain. With acidosis and renal failure impending, pneumonia a constant threat, the risk of operation great, and the chance of recovery without medical treatment nil, (and as is often the case, these patients are iodine fast) there is little to hope for.

The question of anesthesia in thyroid surgery deserves comment, with particular reference to the thyrocardiac subject[13]. Lahey believes that local anesthesia is inferior to gases because these patients are unusually nervous, and that anesthesia is inadequate, unless block is used. Of the gases, nitrous oxide is dangerous on account of anoxemia. The best anesthetics in his opinion are ethylene, cyclopropane, ethylene-cyclopropane, or ethylene ether. He states that choice between the gases is of less importance than the proper conduct of anesthesia, which should include avoidance of anoxemia and obstruction, liberal premedication, minimal rebreathing. Those that prefer the subcutaneous infiltration of ½% procaine along the margins of the rectangular area bounded by a line connecting the midpoints of the clavicles along the anterior surfaces of the sternomastoid muscles from the angles of the jaw to the clavicles, then laterally to each sternomastoid muscle from a central point below the thyroid cartilage, do so because their patients being awake respond to conversation, and in that way prevent adductor paralyses due to recurrent nerve injuries.

Dr. K. M. Heard praises highly the use of avertin[14], stating that the subsequent course of gas anesthesia was so smooth as to abolish a major portion of the work and worry of thyroidectomy. This was due to the high percentage of oxygen tolerated, which seems to be the cardinal point in avertin's safety, allowing a mixture of 40% oxygen, and 60% nitrous oxide to be administered. Dosage was checked against the B. M. R. and the general condition of the patient. The very toxic never receive

over 100 mg. At the Barnes Hospital in St. Louis the use of avertin has become practically a routine measure.

MALIGNANCY

Malignancy of the thyroid gland is an ever increasing problem[15]. C. W. Mayo reports 737 cases of malignancy from 1906-1937 at the Mayo Clinic. These constituted 3% of the total malignancies operated for adenomatous goiter. In the group studied 23.4% were under forty years of age, and 9% were less than thirty years of age, the average age being 50 years.

Those cases in which thyroidectomy was combined with radiation presented some very interesting figures.

(1) 3 year survivals—11.5% better
(2) 5 year survivals—10.1% better
(3) 10 year survivals—57 % better

Survivals averaged over 50% better with combined surgery and irradiation. The largest percentage of their cases were carcinomas within adenomas of high grade malignancy. The most inocuous malignancy in their experience was the papillary type, usually of low historical grade; 90% of this group survived the five year period, and 75% were living ten or more years after operation. Of their total, 50% of carcinomas were within adenoma, 30% were of the papillary type, and the rest in a mixed group.

Allen Graham at the Cleveland Clinic classifies malignancies as:

(1) Sarcomata
  a. Lymphosarcoma.
  b. Spindle cell sarcoma
(2) Mixed tumors
(3) Carcinomata
  a. Not in adenomata
    1. Scirrhus
    2. Adenocarcinoma
  b. In adenomata
    1. Papillary carcinoma
    2. Malignant adenoma

Graham analyzed 270 cases. As to prognosis —mortality is 100% in sarcoma, mixed tumor, and scirrhus carcinoma. In adenocarcinoma, not arising in an adenoma the outlook is good; the tumor is often of microscopic size, low grade malignancy, and is usually only diagnosed by the pathologist. Out of 23 cases of this type, all patients are living. Five year cures were obtained in 50% of cases of papillary carcinoma treated by operation followed with irradiation. The prognosis of malignant adenoma (the most common type of thyroid malignancy) is less favorable than in the group of papillary carcinoma. Using combined surgery plus irradiation 25 (29.8%) of 84 patients lived over 3 years, and of these 25, only 9 were well and had no recurrence. Of the entire group 14.2% are known to be alive and well 5 years after operation[12].

The scirrhus type are often operated too late. They are usually densely adherent to the surrounding structures, and metastasize to distant organs, more nearly always to the regional lymph glands and surrounding tissues. The malignant adenomas (virtually a carcinoma) occur usually in the middle-aged group, and metastasize by the blood stream to distant organs. These tumors, according to Dr. Wartman, often appear benign on microscopical appearance except for invasion of the blood vessels which may show either erosion of the blood vessels, actual tumor tissue invading the vessel, or numerous thrombi of carcinoma cells within the vessel. Distant metastatic implants often differentiate to a point where thyroxin is produced.

With reference to the X-ray response of these tumors it has been found that the scirrhus variety and the malignant adenomata are the most radio sensitive. Of all the carcinomas of the thyroid malignant adenomas constitute about 15-20% of the entire group[16].

Treatment is radical regardless of structure. In advanced cases, treament is directed purely to increase the comfort of the patient. A word about pre-operative irradiation—it it sufficient to state that it is contra-indicated in cases with severe dyspnea and known respiratory obstruction, because it may produce enough edema to completely obstruct the trachea. Pain radiating behind the ear is a late symptom of malignancy of the thyroid and is the result of metastatic involvement of the cervical plexus by extracapsular extension. Metastases to remote organs occur in the following order of frequency: regional lymph nodes, lungs, pelvis, spine, sternum, clavcile, femur, skull, and ribs.

SUMMARY

(1) A historical review of the thyroid gland and phases of its surgical development are here outlined.

(2) An attempt has been made to trace the development of thyroid surgery through the various phases of its development.

(3) Aside from biochemical refinement, and more thorough dissection and isolation of structures, certain fundamental concepts of thyroid disease must be recognized.

Flagstaff Hospital.

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AMERICA AT WAR

APPOINTMENT POLICIES

The Surgeon General of the Army published detailed information concerning policies governing the initial appointment of physicians as medical officers on April 23, 1942. Necessary changes are given wide publicity, at his request, in order that the individual applicants, and all concerned in the procurement of medical officers, may know the status of such appointments.

The current military program provides for a definite number of position vacancies in the different grades. The number of such positions must necessarily determine the promotion of officers already on duty and, in addition, the appointment of new officers from civilian life. Such appointments are limited to qualified physicians required to fill the position vacancies for which no equally well qualified medical officers are available. Such positions calling for an increase in grade should be filled by promotion of those already in the service, insofar as possible, and not by new appointments.

If this policy is not followed, it would definitely penalize a large number of well qualified Lieutenants and Captains already on duty by blocking their promotions which have been earned by hard work. In view of these facts, it has been deemed necessary to raise the standards of training and experience for appointment in grades above that of First Lieutenant.

With this in view, The Surgeon General has announced the following policy which will govern action to be taken on all applications after September 15, 1942:

All appointments will be recommended in the grade of First Lieutenant with the following exceptions:

CAPTAIN. 1. Eligible applicants between the ages of 37 and 45 will be considered for appointment in the grade of Captain by reason of their age and general unclassified medical training and experience.

2. Below the age of 37 and ABOVE the age of 32, CONSIDERATION for appointment in the grade of Captain will be given to applicants who meet all of the following minimum requirements:

a. Graduation from an approved medical school.

b. Internship of not less than one year, preferably of the rotating type.

c. Special training consisting of 3 years' residency in a recognized specialty.

d. An additional period of not less than 2 years of study and/or practice limited to the specialty.

3. Eligible applicants who previously held commissions in the grade of Captain in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) MAY BE CONSIDERED for appointment in that grade provided they have not passed the age of 45 years.

MAJOR. 1. Eligible applicants between the ages of 37 and 55 MAY BE CONSIDERED for appointment under the following conditions:

a. Graduation from an approved school.

b. Internship of not less than one year, preferably of the rotating type.

c. Special training consisting of 3 years' residency in a recognized specialty.

d. An additional period of not less than 7

years of study and/or practice limited to the specialty.

e. The existence of appropriate position vacancies.

f. Additional training of a special nature of value to the military service, in lieu of the above.

2. Applicants previously commissioned as Majors in the Medical Corps (Regular Army, National Guard of the United States, or Officers Reserve Corps) whose training and experience qualify them for appropriate assignments may be CONSIDERED for appointment in the grade of Major provided they have not passed the age of 55.

LIEUTENANT COLONEL AND COLONEL. In veiw of the small number of assignment vacancies for individuals of such grade, and the large number of Reserve Officers of these grade who are being called to duty, such appointments will be limited. Wherever possible, promotion of qualified officers on duty will be utilized to fill the position vacancies.

Much misunderstanding has arisen concerning recognition by Specialty Boards and membership in specialty groups. It will be noted that mention is not made of these in the preceding paragraphs. This is due to the varition in requirements of the different Boards and organizations. Membership and recognition are definite factors in determining the professional background of the individual, but are NOT the deciding factors, as so many physicians have been led to believe.

The action of the Grading Board, established by The Surgeon General in his office, is final in tendering initial appointments. Proper consideration must be given such factors as age, position vacancies, the functions of command, and orignial assignments. All questionable initial grades are decided by this Board. Due to the lack of time, no reconsideration can be given.

There are in the age group 24-45 more than a sufficient number of eligible, qualified physicians to meet the Medical Department requirements. It is upon this age group that the Congress has imposed a definite obligation of military service through the medium of the Selective Service Act. The physicians in this group are ones needed NOW for active duty. The requirements are immediate and imperative. Applicants beyond 45 years may be considered for appointment only if they possess special qualifications for assignment to positions appropriate to the grade of MAJOR or above.

A SURGEON'S PRAYER IN WARTIME

By John J. Moorhead

God of Battle, grant that the wounded may swiftly arrive at their hospital haven, so that the safeguards of modern surgery may surround them, to the end that their pain is assuaged and their broken bodies are mended.

Grant me as a surgeon gentle skill and intelligent foresight to bar the path to such sordid enemies as shock, hemorrhage and infection.

Give me plentifully the blood of their noncombatant fellow man, so that their vital fluid may be replaced and thus make all the donor people realize that they, too, have given their life's blood in a noble cause.

Give me the instruments of my calling so that my work may be swift and accurate; but provide me with resourceful ingenuity so that I may do without bounteous supplies.

Strengthen my hand, endow me with valiant energy to go on through day and night; and keep my heart and brain attuned to duty and great opportunity.

Let me never forget that a life or a limb is in my keeping and do not let my judgment falter.

Enable me to give renewed courage and hope to the living and comfort the dying.

Let me never forget that in the battles to be won, I too must play my part, to the glory of a great calling and as a follower of the Great Physician. Amen.

FILM ON EMERGENCY MEDICAL SERVICE

The Medical Division of the Office of Civilian Defense has produced a sound slide film on the operation of the Emergency Medical Service.

The film shows the integration of the medical activities with those of other protective services during an air raid or other war disaster. The pictures show a Control Center, its equipment and operation; the work of a Casualty Station and a First Aid Post; a Medical Supply Depot; plans for a Decontamination Station and other important features of the procedures worked out by the Office of Civilian Defense for civilian protection.

NAVY FLIGHT SURGEONS

By a recent order the insignia of Navy Medical Officers qualified as Flight Surgeons is to be the traditional gold wings with a gold oak leaf and silver acorn superimposed on the central oval crest. This pin is worn over the left breast. The symbols of the oak leaf and acorn are associated with the Druids, ancient medical priests of the Britons, who wore white robes with these designs embroidered in gold on the sleeve. The Medical Corps of the Navy has used these insignia since 1832.

DENTISTS IN CIVILIAN DEFENSE

The Medical Division of the Office of Civilian Defense has recently collaborated with the American Dental Association in the preparation of the following official memorandum setting forth the role of dentists in civilian defense:

The Office of Civilian Defense recognizes the importance of the dental profession in the everyday life of the American people and expects the dentists to take an important part in civilian defense in time of emergency. The dentist must take his place beside the medical officer and should be prepared for special duties which he is equipped to perform by virtue of his training. Specific ways in which the dentist can contribute his services are:

1. Dentists should take refresher courses in First Aid which will qualify them as American Red Cross First Aid Instructors. Physicians and Dentists, though they may be well trained in the principles of first aid, may benefit by refresher courses and instruction in teaching methods.

2. In addition to preparing themselves as qualified first aid instructors, it is important that as many dentists as possible be trained in those first aid procedures which can only be carried out in the field casualty service by members of the medical and dental professions. Air raid casualties are usually of great severity. Almost half may be killed immediately or die soon after the incident. The remainder suffer largely from grave crushing or penetrating injuries and require morphine and the care of professional experts both at the site of the incident as well as in the Casualty Receiving Hospital. A dentist with supplementary training can be of great assistance to physicians in their field and hospital work.

CONFERENCE POSTPONED

The Executive Committee of the Rocky Mountain Medical Conference has by unanimous vote directed that the Fourth Biennial Meeting of the Conference, originally scheduled for May 19, 20, and 21, 1943, at Albuquerque, N. M., be postponed indefinitely on account of war conditions. The Committee requests that suitable publicity be given to this fact.

The current organization of the Conference will be retained subject to further advice from the Continuing Committee, and current funds of the Conference will be invested in United States War Bonds in so far as is practicable.

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

SOUTHWESTERN MEDICAL ASSOCIATION

(Louis W. Breck, M. D., Associate Editor)

Since there is not going to be a meeting of the Southwestern Medical Association this fall, there is very little new to report. The author of this letter (Secretary of Southwestern Medical Association) has joined the Army of the United States and has closed his office for the duration of the war. He has been temporarily assigned to Fort Sam Houston (San Antonio, Texas) and before long will probably be assigned a great deal further away from home than that.

He has resigned the office of secretary and wishes to thank the Association for the honor and pleasure of holding that office for two years. From now on communications regarding Southwestern Medical Association should be addressed to its President, Dr. C. A. Thomas. As stated previously in the Southwestern Medical Association editorial letter, it is very difficult to get news about various members of this association as there is no news gathering agency. One thing is certain, and that is that the Southwest has done as much or more than any other section of the country in providing medical officers for the Armed Forces. Every able-bodied doctor in El Paso under 45 with only 2 or 3 exceptions, is now in the Service and Arizona and New Mexico have a similar excellent record. The younger men of this organization are looking forward to returning to the Southwestern Medical Association at the end of the war and making it an even better organization than it was before.

Louis W. Breck, M. D., Secretary

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY

(W. John Pangman, Associate Editor)

El Paso County Medical Society met on September 29, 1942, at Hotel Cortez.

The program:

1. Pyloric Obstruction in Adults—2 Cases —Dr. J. L. Green.

2. (a) Case Presenting Intersting Features in Diagnosis. (b) Unexplained Fever in Cases Exhibiting Positive Agglutination for Proteus X 19—Dr. L. O. Dutton.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

Minutes of General Session

Fifty-First Annual Meeting
Prescott, Ariz., May 25-30, 1942

The opening general session was called to order at 10:20 a. m., May 26th, in the Lodge Room of the Elks Club, Prescott, by the president, Dr. W. Paul Holbrook (Tucson).

The Invocation was given by the Reverend Charles Franklin Parker of Prescott.

Senator Paul Keefe of Prescott was introduced by Dr. Holbrook, as follows: It gives me pleasure to present to the Association, Senator Paul Keefe, president of the Senate and a real friend of the medical profession. Senator Keefe proved himself devoted to public health and the welfare fo the citizens of the state in his staunch support of the public health measures backed by the medical profession. I give you Senator Paul Keefe of Yavapai County.

Senator Keefe: Members of the Arizona State Medical Association and their guests, ladies and gentlemen: It is not in order to make a long speech of welcome. You have interesting subjects to be discussed by eminent members of your profession, so I will make my remarks snappy and to the point. Your president's remarks have reference to the special session of the legislature. During the regular session, I and some other members of the legislature made a mistake, and a bill slipped through which made osteopaths surgeons. It was my pleasure, in the special session, to help undo that mistake and correct the wrong which was done in the closing hours of the regular session.

It is a pleasure to assure you, ladies and gentlemen, that Yavapai County feels fortunate in having you here for your meeting. We recognize you as a group of men and women who go about the world doing good, helping mankind, spending your time and strength in the matter of research so that you can help us who need your services. I will now tell a story on Dr. Swetnam which is really on me. Your Dr. Swetnam of Prescott and I, some thirty years or more ago, were riding south of Prescott when we came to a stream of water, and got off our horses to take a drink. As I put my head down to drink, Dr. Swetnam halted me and showed me how to put my head down to drink. I did and then he said to me, "Do you know what you have done? Do you know what this stream of water is? You drank out of the Hassayampa River with your head upstream; anyone who does this will never leave the territory and will never tell the truth again." I am still here. Was hoping that Dr. Swetnam might have time to take some of you to the river and let you drink with the head upstream, so that you will stay.

On behalf of the people of Yavapai County, we thank you for coming here for this meeting;

we hope that you will come back again shortly.

Dr. Holbrook: Mayor McCabe, unfortunately, is ill in bed, and Mr. McDowell is acting mayor and will welcome the Association on behalf of the city of Prescott.

Mr. McDowell: Mr. President, members of the Association, ladies and gentlemen: There is not much that I can say except that Prescott is proud to be host to this convention. We understand that you will have many important problems to consider. Prescott and Yavapai County are the hub of enchanted circle, with the Grand Canyon on the north. We hope that you will find time to enjoy some of these wonders. We think that our doctors will take care of you and we hope that you will return, especially to the Frontier Days and the first Sunday in August and help us with the Smoki ceremonials. We feel it a privilege to be host to your convention of 1942. Thank you.

Dr. Holbrook: Whenever medicine is discussed in Arizona or the southwest, or pioneers are mentioned, I notice that one name is always mentioned among the pioneers of Arizona, with something of national recognition. The record of medicine in Arizona is linked to Prescott through one of its pioneer physicians—Dr. John W. Flinn, who will speak for the Yavapai County Medical Society.

Dr. Flinn: Mr. President, fellow members of the Arizona State Medical Association and invited guests. There have always been red letter days in the history of the Yavapai County Medical Society when we have had the pleasure and privilege of playing hosts. I say "playing hosts" to the other members of the Association and to our invited guests. To an experienced eye it would seem that this meeting perhaps would have a bit more of a scarlet tinge than any of its predecessors. It is always a privilege to welcome the State Medical Association to Prescott, but today the privilege is a hundredfold greater on account of the problems which will be presented to us. Many times greater than at any time during the fifty years history of this Association. It is an interesting coincidence that the opening meeting of the first Association, the opening session of the first meeting of the Arizona Territorial Medical Association was held exactly fifty years ago yesterday on May 25, 1892, when this Association had its beginning. During these fifty years, the medical profession of Arizona has faced many problems but none which begin to compare in importance with the problems which face us today. We are confident, Mr. President, we in Yavapai County, that the medical profession of Arizona will respond and creditably meet any responsibilities that come to us in this great crisis. The Program Committee, under the able leadership of the President-Elect (Dr. E. Payne Palmer) and of the secretary, has compiled for us a most interesting program and most interesting discussions. We are particularly fortunate in having with us an unusually large number of visiting guests, eminent men of the profession from the east and the west, to present papers and to lead discussions. Everyone of us here is possessed with the idea that our duty in this matter is to give to these questions the most intensive concentration possible within the next three days. We look foreward to three days filled with intensive work, and for the sake of some of our older friends, whose names I would rather not mention in public, I presume the nights will be given over to play. So far as the social end of this program is concerned, the least said the better. You have probably all read that most interesting narrative of Kelland's in the Saturday Evening Post. With meticulous accuracy, Kelland has painted social life up and down Whiskey Row, as it was sixty years ago. Whiskey Row is still with us in its pristine purity, and you have an opportunity to judge just how correctly Kelland colored the situation. There is one encouraging feature of the social end of the program and that is that we have in Prescott an unusually competent emergency crew, well mannered gentlemen who will be very pleased indeed to gather up the remains, or shall I say the remnants, and ship them to your friends at home C. O. D. To those who may be fortunate enough to return home alive, you will at least have established a record in your family history, a legend stating that dad or grand-dad, was immortalized by losing an eye, or leg or arm in the medical meeting in Prescott in 1942.

(Dr. Clarence Gunter of Globe, who was scheduled to make the response for the Association, was absent, and this feature was omitted.)

Dr. Holbrook: Your president, I see, is on

the program for a report. I have very little to say and will make this report brief.

It has been a pleasure and an honor to serve as president of this Assoeiation during the past year, and I shall briefly mention only a few things whieh have oeeurred directly affeeting the medical profession in the state during the year past. Let it be understood that anything we have accomplished has been due to the hard persevering work of the committees, the council and the component eounty soeieties. Your president, as sueh, can lay elaim to no accomplishments, except as the whole unit of the Medical Assoeiation has worked together during the past year. This has been something of a demonstration year in Arizona medicine.

We have had the question of the osteopaths being made surgeons by legislation to faee, whieh has been mentioned. It has been met and completely and satisfactorily settled in the special session of the legislature.

We have seen the organization and successful growth of the Arivona Physieians' Committee, under the leadership of your President-Elect, who will, I hope, have something more to say about this Committee. It was designed to further the public health of the state and to place Arizona medieine in the forefront, not only in a medical way which the Assoeiation is doing, but also in the realm of publie relations.

We have seen the war emergency develop which has brought profound changes into many of our lives and will undoubtedly disturb all of us more profoundly before many months. This situation has been met by the doctors of the state, willingly, cheerfully, both voluntarily and through the Procurement and Assignment Serviee. So far as the physieians of Arizona are concerned, we can assure our government that there will never be any need for a draft of physieians, as more men are willing and anxious to go than there will be need for. Your loeal Procurement Committee has worked untiringly and without reeompense. The chairman of that eommittee has written with his own hands on the typewriter, three or four hundred letters in connection with the Procurement and Assignment Serviee in this state. He has been supported by this Association and the national organization.

During the past year, your Assoeiation has devised and at the last session of the House of Delegates, adopted a long range planning program, which is designed to avoid allowing emergency of war, or legislative diffieulties of any type to destroy the gains already made, and making it possible for the Arizona Medical Assoeiation to beeome constantly more united, more powerful and better organized to carry on its funetion as an organization. Probably 25 to 35 pereent of the doctors of this Association will soon be in active military service. This puts a greater burden of financial support on those who remain. It is necessary and essential that this organization go straight forward, with inereasing gains rather than losing ground or standing still during the emergeney.

During the past year, considerable progress has been made with regard to the reeognition of this Assoeiation in matters of public health. Our present governor, after being interviewed early in the year, has consulted the medical Association with regard to every appointment made by him which affects public health. He or any succeeding governor will do likewise, if the matter is placed squarely on his doorstep by this Assoeiation.

Plans have been devised by your Council to reawaken and reunify the interest of the medical profession in the medical Association, particularly with regard to the northern counties, which, due to sparse population and long distances, have had few regular meetings, nor have they been a real unit of the Association, as they should be. You will hear more of this shortly, as plans are under way to tie them more elosely to the state Assoeiation.

As the war goes on and more men enter the active service, the post-war period should already be considered. When the war is over and those of us who have gone will return, economic conditions throughout the country will be unquestionably somewhat chaotic. The problems of the practiee of medieine undoubtedly will be in the forefront. All sorts of eraekbrained schemes, from the standpoint of free medical care and socialized medieine will be brought to your state and national legislatures. Modern medieine will face, in this post-war period, the most diffieult and trying time it has ever faeed. We have the obligation to maintain our organization of eounty societies, state associations and parent organization of American Medieal Assoeiation, in the elosest possible relationship, if we are to hope to maintain anything like the practiee of medicine as we have

heretofore known it. And if we can prevent the growth of various isms and a completely socialized medical schemes which undoubtedly will be thrust on us, we will have to object to it vigorously. To accomplish this, the medical profession must be a unit as never before. I urge you, in these coming years, to build these safeguards of unity of medicine, of professional ethics and of the practice of the ideals of medicine, stronger than they have been built before. In that connection, it is incumbent on the members of this Association to stop being passive, stop the attitude of no-interest in politics. It is an obligation on each of us to become interested in whom our legislators are, what their attitude is toward public health, and we must come out completely for the legislation and the type of legislator who will stand for what we know, and he knows, is for the interest of the public health. Each county society should continue its contact with its own legislators. The state Association should keep close watch on every bit of contemplated legislation, and if we stay on the job, we need have no fear. Silence gives consent when legislative matters are up, and the medical profession has been inarticulate too long with regard to matters of public health.

As the years pass, this Association, in spite of the depletion of its membership by the war, will get stronger and stronger. This is due to the wisdom of your choice of future officers, men who are fired with enthusiasm and courage. As this will probably be my last opportunity to see you for a time, since I am going almost immediately into active service, I would like to give you at this time, as your next president, the youngest man of the Association, the man who has the most vigor, the most fire, the bettingest man and the most courageous man I know; I do not see how the Association can fail to go ahead with its ideals untarnished and continually progressing, under his leadership. I give you Dr. E. Payne Palmer, your new President.

Dr. E. Payne Palmer: The title of this paper should be "To whom much is given much also is demanded." However, we do not think that would be of so much interest. In 1900 we first came to Prescott, and we are coming back again now after more than forty years, so that this address is appropriate.

(Dr. Palmer reads the "Address of the President-Elect, on 'Arizona Medicine of 1900 and Today.' ") This address was published in the June issue of Southwestern Medicine.

Dr. Palmer: We have with us an honored guest whom we delight to welcome, the past president of the California Medical Association, who also is head of the Procurement and Assignment Service for the Ninth Corps Area. We always feel proud when we can get a Californian over here, because they go to the best places. We introduce Dr. Henry Stanley Rogers of Petaluma, Calif.

Dr. Rogers: I am just a country doctor practicing medicine in a country town and what I have to say will have a country flavor. He reads paper on "American Medicine and the National Emergency."

President Palmer at this point introduced Lieut. Edw. O'Hara, who was a guest of Dr. Paul Palmer. Lieut. O'Hara declined to make a talk.

Dr. Rogers then gave an informal talk on the Procurement and Assignment Service. He stated that the PAS cannot move a man from one place to another, but that Mr. McNutt has been made head of the Man Power mobilization of the nation and when the necessity arises, he can probably move any man to the place he is most needed. He stated they were told at the recent Omaha Conference of the PAS, that if the war continued we would need 45,000 physicians for the armed services; there are only 62,000 doctors under 45 years of age, and from this number must come most of the 45,000 we need. Out of the 62,000, there are 6,000 women, 3,000 colored and 3,000 aliens, and 6,000 disabled; that means that there are only 42,000 available for the army and navy needs. About the first of July there will be available about 4,000 young physicians for the services, and in another year there will be about the same number; so that apparently there will be enough.

Question: Is there any checkup being made to see if doctors are filling out their forms?

Answer: It is a little too early to say about that. The doctors in the age group under 37 who have failed to fill out these forms will not be handled with kid gloves. The PAS is under the Selective Service which is the law of the land. A lot of these doctors would be in the service as privates, but for the PAS asking for

their deferment. Some have been drafted in the east. A 3A- classification will not hold because the pay of the lowest commission for a doctor (First Lieutenant) will take care of the family. Any classification is good for only six months. A draft board can change a 3-A to 1-A any time they wish and the claim of dependents is not valid for doctors.

Dr. C. A. Thomas: There are a few instances in this state where men under 37 have taken civilian work or industrial work which they think is sufficient to exempt them from army service. What are the jobs that are considered so "essential" as to exempt them from army service?

Answer: That is up to the local PAS committee. If the committee thinks that some older man can do that work, they can list the younger man as available. The question is whether the man can be replaced by an older man who can do the industrial work. The older man can usually be secured if the industry will pay more for his services. It is up to the local committee to say whether a man is essential or available. Conscientious objectors do not enter the picture, because the duties of the doctor is non-combatant work.

At this point the meeting was turned over to Dr. John W. Flinn to conduct the Memorial Service for deceased members of the Association, which has become an established custom in our annual meetings.

The Report of the Committee on Obituaries was read by Dr. Flinn, naming the deceased members and giving a few historical facts regarding them.

IN MEMORIAM

Zachary Causey, Douglas, Ariz.
William F. Chenoweth, Nogales, Ariz.
John Chiavetta, Phoenix, Ariz.
Albert L. Gustetter, Nogales, Ariz.
John J. McLoone, Phoenix, Ariz.
James W. Morris, Safford, Ariz.
William E. Platt, Safford, Ariz.
James B. Van Horn, Tucson, Ariz.

Violin music was furnished by Mrs. Charles Ewing; prayer was offered by Rev. M. E. Travers, and taps was sounded by Richard Miller.

Forenoon session then quietly adjourned.

At the noon hour (12:15 to 1:45), two Clinical Luncheons were held. The Medical Luncheon was presided over by Dr. John W. Flinn, and the speaker was Dr. Noble Wylie Jones of Portland, Ore., who discussed "Problems of Regimented Medicine in British Columbia, Australia and New Zealand."

The Surgical Luncheon was presided over by Dr. C. E. Yount, and the speaker was Dr. Verne Hunt of Los Angeles, who discussed "Surgical Principles Involved in Eradication of Lesions of the Colon."

Wednesday Afternoon Session, May 27

Session convened at 2:15 p. m., and the president introduced Dr. Noble Wylie Jones, of Portland, Ore.

Dr. Jones: I wish to thank you for inviting me here to take part in this program, and I might confess to a feeling of hesitation in bringing two such controversial subjects as I have chosen. Possibly these will be of keener interest because they are controversial and so common. The question of chronic infection as related to cardiovascular disease is an old one, with an extensive literature and still it is remarkable that there is so little about it that is recognized as proven. That is in contradistinction to the question of cardiovascular syphilis which for a long time has been recognized as a clinical entity, even before the organisms of syphilis were found histologically in the walls of the arteries. Still one remembers also that experimental cardiac syphilis has never been produced.

(Dr. Jones then talked from lantern slides and without manuscript, on "Relation of Infection to changes in the Arteries, Particularly the Coronary Arteries.")

Dr. Palmer then introduced Dr. Joseph Brennemann of Los Angeles who discussed "Acute Abdominal Conditions in Children." He talked from slides and without manuscript. The high points of his discussion are summarized below:

Dr. Brennemann: Dr. Palmer some time ago asked me to come over here. I am getting along in years and thought the torch of enlightenment should be handed over to younger men. However, after thinking it over, I had a desire to see once more a real blue sky the like of which we do not have in California, so I accepted. Then came the question of what to talk about. I am a general practitioner who took the precaution to limit my work to the early period of life. For more than twenty years, as head of a large children's hospital, I saw practically every acute abdominal condition which came into the

hospital. I am still more interested in the acute abdomen than anything else in pediatrics.

The approach to the child is difficult; the child does not talk like the adult, who usually talks too much. The child gives a clear history when he talks. Most pediatricians are more at ease with a child the younger it is, and feel more at ease with a baby than any other age. Palpation is important and especially palpation which elicits tenderness. Frequently the condition is aggravated by massage. Do not ask, "Does it hurt?" Keep your eye on the indicator which is the childs' face; the child will wince or say "ouch."

He described three type of acute abdominal conditions: (1) Obstructions; (2) Hemorrhages; (3) Infections.

1. (a) Atresia of the esophagus; has seen 15 or 20 such cases, and is still willing to let the child die without meddlesome punishment.

(b) Pyloric obstruction: Still a mystery why it waits two or three weeks to develop. Have to distinguish between spasm and pyloric tumor. There is one striking difference; spasm will yield to careful feeding and atropine. In cases of tumor, you can feel the tumor about the size of a grain of corn; almost never can cure these medically. Can make the diagnosis without barium meal or x-ray. Remember that atropine will run the temperature up; have seen it as high af 106.

(c) Duodenal obstruction not frequent. They all vomit bile which the pyloric obstruction case practically never does. X-ray will help here because you can find the point of obstruction.

(d) Intussusception is the melodramatic thing in pediatrics. When a mother calls you up and says, "My baby is vomiting and is crying," and she is able to tell you the exact time the baby started to cry, better go to see that child. Nothing begins as abruptly as this condition. The child may be peacefully sleeping and will wake up with a scream and fights with pain. It is likely to be muffed by the mother and the doctor. It is muffed because the crying stops after a time; after beginning with the intense colicky pain, in a few hours the child no longer cries but lies rather quiet; he lies with a resigned expression on the face which is fairly characteristic; they practically never smile. I saw one who smiled, but there is no "always" in medicine. Child may turn to one side and draw up the leg or may moan. Uusually there is one normal stool and then no further stool, or there is blood or glairy mucus. The blood which is passed never coagulates and there is never much of it, and it is usually mixed with mucus —practically a pathognomonic symptom. About three times have felt the tumor by rectum. Children rarely cry when making the rectal examination; when pulling the finger out there is usually a silent spurt of something which looks like current jelly, and that is practically pathognomonic. Can usually feel the tumor.

(e) There are other obstructions, such a congenital narrowings. These do not have bleeding in the stool. Stricture of the lower end of the canal have seen at least 20 times. Obstruction at the anus is not in the muscle but just above the sphincter, at the fusion point of the end gut with the anus. When the iris diaphragm obstruction is once dilated it remains so, so that it is not muscle.

2. Hemorrhages: Hemorrhage from the bowel is always a sérious symptom. Interpretation depends on many things. Does it clot? Is it bright? Is it coffee ground? Is it inside or outside of the bowel movement?

(a) Henoch's Purpura.

(b) Bleeding Meckle's; seen about 15 times; sudden, fairly large hemorrhage from the bowel, teacupful or more; usually very bright but may be darker; always clots, which distinguishes it from intussusception; usually painless. Can have ulcer in a Meckle's; a very small ulcer can have a great deal of bleeding.

(c) Polyps: Several cases on record. Difficult to diagnosis.

3. Infections. Very briefly discussed appendicitis and peritonitis. The latter is sometimes hard and sometimes easy to diagnose. If a tube has been put in there may not be any distention. They have pain, they vomit constantly and have distention, otherwise. Streptococci are the cause as often as pneumococci. The question of whether to operate or not in appendicitis; this depends on the history, whether associated with appendicitis or whether primary. The sulfa drugs have altered the picture. It would be very desirable to have some exact method of diagnosis. Can make a puncture and see what the infecting organism is; the therapeutic test with the sulfa drugs usually obviates the necessity of doing this. The Lavene tube can be used too much.

Dr. Noble Wylie Jones at this point conducted a panel discussion on "Medical Management of Low Grade Chronic Cholecystitis. A brief summary of his opening remarks follows:

This subject may not be interesting. Dr. Holbrook said that we might, as a background, mention the work of Dr. Stone. He gave six indications for surgery in gall bladder disease: (1) Recurrent biliary colic; (2) Severe acute attack; (3) Obstructive jaundice; (4) Other abdominal conditions with gall bladder disease found on exploration; (5) Finding of a solitary stone, because have had very severe acute inflammation with solitary stone; we invariably advise operation in those cases; (6) Continued digestive distress, either with stone or with malfunction of gall bladder. It is with this last group that we do not agree. Some year ago we tried to study the problem of the chronic asthenic patient; about the same time, Goldwater of Boston published work describing the automechanism of that build of patient; Lane of London was doing ileostomies and colectomies for what he called intestinal stasis; Raufsing and others were hitching up the mobile colon; Coffey was going one step further with his hammock operation. None of these seemed logical and from the medical standpoint, first tried to work out a method to rebuild these people, and this led to the formulation of what I think are fundamental principles, namely:

(1) Complete regulation of the gastro-intestinal tract by diet for the motor mechanism; (2) putting on weight, and (3) building the body tone and habitus.

Such a program will usually take from two to four years of constant rebuilding to bring about a satisfactory end result, but it can be brought about and the gastro-intestinal tract be made to work normally.

With regard to the first point, we ran across a certain number of patients in whom we could not regulate the bowel or stomach, but would upset them and produce gas, with pain, oftentimes vomiting, sometimes diarrhea. For an explanation of this, discussed the problem with Alvarez (then of San Francisco), and it seemed to fit with his gradient idea. (Discussed this from lantern slides.) Usually these patients show gall-bladder infection. Have used this method for unknown surgical and medical conditions in the abdomen. When the technic of visualizing the gall bladder shadow on the film, we began to use the x-ray in diagnosing chronic gall bladder disease. This was vastly improved when dye visualization came into use. Study of these patients led us to still continue that type of diagnostic work, making use of the dye only for verifying the other findings. We found instances of gall stones without any symptoms whatever; others with very definite symptoms which under ordinary circumstances most surgeons would consider surgical, but by putting them to bed and relieving the motor disturbances by diet and belladonna, we found that roughly 70% of these low grade chronic gall bladder cases did not need to be considered surgical. With regard to Dr. Stone's statement that when such a patient was operated on and had no relief, it was a mistaken diagnosis; sometimes, after operation when the motor disturbance had not been removed, we concluded that these were the chief cause of the symptoms and they were simply secondary to the gall bladder condition. We know now that this does not always hold true, as shown by the work of Ivy and others on Dyskinesia. The motor disturbances of the biliary tract would have the same fundamental basis as those of the gastro-intestinal tract, and would be relieved by the same treatment. Have often seen patients who have been operated on and been relieved by the operation, and then through some error in diet or living habits, will have a recurrence of their pain and distress which was exactly as before the operation; when put to bed on an ulcer regimen or similar diet with liberal amounts of belladonna and bowel regulation, the motor disturbance will entirely disappear. You can see the motor distrubance disappear under the fluoroscope. They may disappear and then come back; this usually means a low body tone. They need longer periods of body build-up. Horseback riding is good. Have continued to make use of this plan all these years, but do not think many others have done it. Do not think diet alone can be used to determine the probability or even the possibility of gall bladder disease. This last group is the largest group and roughly about 80% of them are relieved medically, about 10% come to surgery and the others are not relieved.

(Dr. Jones showed several films of gall bladders, several of these by the old method of Leonard and George, which has been largely

forgotten but is still valuable. As to why the shadow of the gall bladder on the film would vary in density, some chemical analyses have been carried out. The normal gall bladder wall contains .02 grams per cent of calcium oxalate, while the gall bladders whose shadows were classed as two plus, the calcium oxalate had doubled and those with four plus shadows went as high as .16 grams per cent.)

Do not pay an attention to the functional dye test to determine operability. A series of films were then shown, illustrating types of shadow, with and without stones and the effect of dye.

Dr. Robt. S. Flinn of Phoenix and Dr. Chas. S. Kibler discussed the presentations of Dr. Jones. Dr. Kibler asked some questions: (1) Is cholic acid of any value in poorly functioning gall bladder? (2) Is there any value in drainage with Epsom salts? (3) Is there a relationship between poorly molite gall bladder and infection, or a poorly functioning gall bladder and infection?

Dr. Jones: Judd believed that most of these poorly functioning gall bladders were not infected; that it was a question of cholesterol deposition in the wall. He cultured many and found them sterile. With regard to dehydrochloric acid, I think we have seen some value in that. In this group where we think the symptoms are related to the motor disturbance, have not seen any benefit from the dehydrochloric acid nor from the use of bile salts; I think they aggravate the motor disturbance. With regard to Lyons' work, must confess that have not seen so much of it. Have had the feeling that those patients who had a number of so-called non-surgical drainages were aggravated and were much more apt to come to surgery. May be mistaken in that; Lyons still believes very firmly in it.

(There were some further questions and answers with regard to Dr. Jones' first address, but that was not supposed to be included in the panel discussion, so they were not reported.)

On Wednesday evening, May 27, the Stag Party, at which the male members, guests and visitors were entertained by the Yavapai County Medical Society, was held at the Hassayampa Country Club. The reports about this are such that probably it should be passed by without further comment.

Thursday Forenoon, May 28

Announcement was made regarding the illness of Dr. Wm. B. Watts of Miami, who looked forward to attending this meeting, but is now at La Jolla, Calif., seriously ill. Motion was made by Dr. Swackhamer and seconded by Dr. Yount that the Association send to Mrs. Watts the regrets of all members present over Dr. Watts' illness and their sincere wishes for his speedy recovery. This was carried viva voce. (Secretary sent this the same day, and a very cordially grateful reply was later received from Mrs. Watts.)

Dr. Palmer: The next guest speaker is one whom we all know and of whom we are proud. One of the leading surgeons of the country who will lead us in a double symposium. We have selected two good men of the state to collaborate and present the medical phases of the subjects.

Dr. Verne Hunt of Los Angeles will discuss Malignant Lesions of the Stomach and Dr. Joseph Bank of Phoenix will discuss Benign Lesions of the Stomach.

Dr. Hunt will then present the subject of Obstructive Jaundice and Dr. V. G. Presson of Tucson will discuss Non-Obstructive Jaundice.

Dr. Hunt: Mr. President and members of the Association. First of all, I want to say that I did not select these subjects, but they were selected for me by your president. However, I am happy to speak on these topics to the best of my ability and with what knowledge of the subjects I have.

It is a difficult matter to talk about cancer of the stomach and say the things we have been saying and must continue to say, and make them interesting. However, just so that I may not get too far afield, have prepared a paper which I will read, and show a few slides.

Dr. Hunt then read his paper (which was turned in for publication), and followed this with a lantern slide demonstration which was very enjoyable.

Dr Joseph Bank then presented a paper on "Benign Lesions of the Stomach."

Dr. Hunt: Would like to make a few comments on Dr. Bank's presentation. He has made a very fine presentation based on a tremendous amount of valuable material. Would like to comment on one or two of his statements and hope that he will not consider my remarks impertinent. In speaking of the treatment of

gastric ulcer, he had one sentence on his slide which said "no surgery if it can be avoided. Do not think he meant it just that way. As a matter of fact, surgery can be avoided in every gastric lesion except acute perforation; nothing else forces us to operate, so that I do not think he meant that statement that way. He probably meant that there are some definite indications for operating on gastric ulcers and he probably would subscribe in general to these, or most of them. (2) Most of us will agree that in these cases of ulcers of the stomach, there is gastric retention not because of obstruction but because of the interference with gastric motility by virtue of the involvement of the musculature of the stomach so that it will not empty. When one can be certain that this is happening and that the lesion will subside under medical treatment, well and good; however, some of these are not amenable to medical management. (3) In penetrating ulcer, especially into the pancreas, many of these are not amenable to medical treatment and some to surgery. (4) There are some lesions where we cannot be certain of the true nature of the pathology and these are certainly surgical; do not think he means that we should avoid surgery in such cases.

Dr. Bank made another statement, regarding which I hope he will not consider me impertinent, if I disagree. He said that once a gastric ulcer is operated on the patient must live an ulcer life forever thereafter. Would suggest that I do not agree with that. That used to be true in the days of gastro-enterostomy, when that operation was performed for duodenal ulcer and often for gastric ulcer. Local excision augmented by posterior gastro-enterostomy, is one of the most satisfactory operations so far as ulcer of the stomach is concerned; many of these patients get along on a regular diet without recurrence. During recent years, have developed a different conception of stomach surgery and usually some type of gastric resection is done. Some cases will not permit of this and more conservative operation is better, and a local excision with posterior gastro-enterostomy is done. In those patients who have had gastric resection, do not believe they should be put on a post-operative ulcer regimen. The extent of the gastric resection is an important matter. If one performs a partial gastrectomy usually it is necessary to cut above the ulcer, and it is important that we should have some idea about the extent of the gastric resection in treatment of recurrent ulcer or post-operative anastomotic ulcer. Dr. Bank said that it is unusual to see ulcer of any kind where achlorhydria exists. What do we wish to attain in the treatment of acidity? Do we wish to abolish the acid or do we wish to maintain a small amount of acid? Personally, I object to the three-fourths or four-fifths resection for duodenal ulcer or for the opening ulcer in the pyloric end of the stomach. When this much of the stomach is removed, for all practical purposes he has done a total gastrectomy; there is only a small portion of stomach left which serves not as a receptacle but as a passageway. It is important to preserve gastric function if possible in the gastric pouch. In my experience, have not seen an ulcer recur in any instance where we have performed the hemigastrectomy. In approximately 85% when the pre-operative acids were 100 or less, we have had an achlorhydria post-operatively. Wagenstein insists on having acid after histamine stimulation. That will not afford a reasonable insurance against post-operative ulcer. We do not live in a state of histamine stimulation. We are interested in the acids with a normal well-rounded diet, and fully 85% of the cases have achlorhydria after hemi-gastrectomy. So far as post-operative diet is concerned, since doing hemi-gastrectomy, do not put these patients back on ulcer diet; have found that they do better on a well-rounded general diet. That is necessary to maintain their weight and take care of their bile and pancreatic secretions. Some will develop diarrhea because they are advised to go on small frequent feedings and an ulcer diet which is not sufficient to take care of their pancreatic and bile secretions; they must have food in order to utilize these secretions, and we want these patients to have considerable volume of food. We encounter difficulty sometimes with patients who resent being told to have a well-rounded diet. Generally these people do not need small frequent feedings, but good stable food and lots of it. We have found that most of these patients can forget that they ever had an ulcer.

Dr. Banks: I appreciate what Dr. Hunt has said and am glad to accept all his statements. The statement about "no surgery if it can be

avoided'' perhaps might apply more to duodenal ulcers than gastric ulcers. That was put in abbreviated form because I feel strongly that when surgery is done on ulcers, it should be extensive radical surgery rather than conservative surgery; that means that it should be resorted to only after careful consideration So far as surgery is concerned, there is still difference of opinion between medical men and surgeons. With regard to the statement that a patient with an ulcer should always be an ulcer patient, will illustrate by a recent incident. Only last Sunday, patient called on telephone from Philadelphia, wanting a definite opinion. He had had a duodenal ulcer in the second portion of the duodenum; it was never shown by x-ray but he persisted in having ulcer symptoms and was finally operated upon and the ulcer discovered, and partial resection done. This man had developed symptoms again and had a marginal ulcer. Such patients should be seen once or twice a year to be checked and should follow ulcer treatment. The problem of surgery should be considered carefully, and radical surgery should be used when surgical treatment is decided on; patients with the so-called ulcer diathesis must be treated indefinitely, because we do know that marginal ulcer can occur.

Dr. Hunt then read his paper on ''Obstructive Jaundice,'' and showed many illustrations of cholangiograms by lantern slides.

Dr. V. G. Presson of Tucson then read a very instructive paper on ''Non-Obstructive Jaundice.''

Since both of these papers will be published in Southwestern Medicine, notes were not taken on them.

The Clinical Luncheon of this day was presided over by Dr. J. H. Allen and Dr. Joseph Brennemann was the speaker, the subject being ''Acute Appendicitis in Children.'' Dr. Brenneman again spoke without manuscript, and the gist of his remarks is as follows:

You may wonder why a mere pediatrician should choose a surgical subject. I do not look on appendicitis as a surgical subject. In the hospitals where I have been we have had routine services of interns and residents, but not specialized services. For twenty years we never knew when a child who might have appendicitis ceased to be medical and became surgical, so we thought we should know something about it. We would see perhaps 25 to 100 children with abdominal pain before one looked bad enough to call the surgeon. Then we called him to get his opinion, but assuming that we have the same intelligence that he has, we should know as much about the diagnosis as the surgeon. We ought to know more, but certainly we know as much and that is the justification for a pediatrician who has seen probably a thousand of such cases, speaking on the subject.

Probably there is no disease that we know more about than appendicitis; we know its pathology and we know what delay will do. There are statistics that the mortality from appendicitis has not decreased but is somewhat higher than it used to be. Why? There are five reasons for this high mortality:

(1) In children the onset of appendicitis is insignificant. It does not produce much fever and rarely much pain. The mother is apt to think of the seriousness of the child's illness in terms of fever or pain. That is what makes appendicitis, like diphtheria, serious.

(2) There is abdominal pain and vomiting and that suggests something in the gastro-intestinal tract; the mother gives a mild cathartic and then another cathartic, and children often have had several catharties before they come to the doctor. It is an old story that catharties are all bad; we should, in season and out, tell mothers every time we see them that above everything else, when the child has pain in the abdomen, DO NOT give a cathartic. There is another phase to this point; not only is the cathartic bad, but it delays the time for favorable operation. It is well known that appendicitis should be operated early, but by the time we wait for the cathartic to act, much time has passed. Tell the people, if there is pain in the abdomen, call the doctor, but even more if there is tenderness.

(3) The entirely erroneous idea that every case of appendicitis should be operated on as soon as seen. I refer to a limited number of cases in which that is not true.

(4) Have no axe to grind, but there was a time when appendicitis was considered something that only an experienced surgeon should handle, and it is still a condition that not everyone can operate upon. The bars have been let down and every doctor thinks he can operate on appendicitis. It is still a serious operation.

(5) It is not easy to diagnose. If you see only one or two a year, especially after they have had cathartics, it is easy; but if you see many in a year you become impressed with the fact that the diagnosis is a difficult thing.

What causes appendicitis? There are two main lines of thought, and both are right. It is rather interesting that we pediatricians and general practitioners practically never see an appendicitis with enteritis or dysentery or typhoid, where we have conditions favorable for extension from the bowel lumen. So this does not account for all of them. I am convinced that appendicitis is a complication of some other sickness, such as upper respiratory infection, scarlet fever, measles, and so forth. Pediatricians have talked about that a great deal, but you cannot expect a surgeon to look into the throat. A surgeon recently reported many cases where had been a preceding respiratory infection. There is a good reason why tonsilitis should be followed by appendicitis. They both have lymphoid tissue and whatever one may think about Rosenow's teaching, there is something in the idea of selectivity of tissue. The appendicitis has been spoken of as abdominal angina. Out at Northwestern, where every student has to report every case, we reported eight times as many appendicitis cases during grippe infections as during the interims. Some workers a few years ago took culture from throat of tonsil case and injected it into rabbit and the rabbit had appendicitis—which is suggestive. This is probably why we sometimes have epidemics of appendicitis. That has been described in small towns, where there would be 20 cases in a small town of 10,000. It is probable that some epidemic went through the town and infected the appendix. Recalls one case where a child came into the hospital and five children in that ward had appendicitis the next week.

The appendix is a small thing and on the surface it would not cause much disturbance, but it is in a bad location. Usually there is little fever and relatively little pain. Have seen two cases with so much pain that I thought they probably did not have appendicitis, but they did. They have very little fever. If they have fever to 104-5 and pain in the lower right quadrant, rather lean away from appendicitis. Saw a child coming out of a convulsion, fever 105.5, almost unconscious, and when pressure over the region of McBurney's, cried out. I told the doctor he had better watch that region. The next day he was better, fever was down, but the tenderness in the LRQ was still there. Two days later came in with ruptured appendix. However, when the fever is high, usually there is something else. They nearly all vomit; surgeons lay great stress on that, more than we do because we see children vomiting so often. A few do not vomit, but they usually do. The white count runs 15,000 or up, though have seen them under 10,000. This helps if you are in doubt, and especially if you make frequent counts; if it goes up, watch out.

Pain usually starts, as in the adult, around the umbilicus and then down to the LRQ. Far more important than pain is tenderness. This always means something and it is at the point of maximum involvement. Widespread tenderness is not so likely to be appendicitis, but may be led astray in this. The rule is that the maximum tenderness is at the point of maximum inflammation. It can extend down, or back or to the left. Recalls two cases where it was on the left side; one was in a case of situs inversus; in the other the appendix extended across the midline and the point of maximum tenderness was across the midline. Rebound tenderness is stressed a good deal, where you get tenderness in the abdominal wall.

Rigidity is not necessary for diagnosis, in early appendicitis. When you get a boardlike rigidity, you probably have peritonitis.

Rectal examination is of doubtful value; personally have not ordinarily done it; it is unpleasant and painful to the child and usually can get the necessary information without rectal examination; occasionally it is of value. Do not keep punching or poking and saying "Does this hurt?" Watch the child and see whether he squirms or twists his face or says "ouch; you can tell that way. We rarely see in children the vague funny pains that adults have; children usually tell straight stories.

The usual course of appendicitis in children is that they run for a day or two before they rupture; not frequently fulminating. However, they can rupture in 10 or 12 hours, though this is rare.

If appendicitis runs on a day or two what happens: (1) It may subside and get well; if we will recall the number of people who have had one or two attacks of appendicitis, we

know that the percentage of cases which subside and get well is high. (2) May rupture with spreading peritonitis. (3) Either with or without rupture, may form localized peritonitis with circumscribed mass. (4) Chronic appendicitis —in the sense that that inflammation persists over a long period of time.

Treatment: We all agree that the early case should be operated upon. In the case of rupture and spreading peritonitis, if we definitely establish that he had appendicitis and now has peritonitis, one should operate. If the appendix can be removed without too much trouble, do so; if not, leave it. The question whether to drain or not has been partly solved by the sulfonamides. Have seen many surgeons close the peritoneum. If the appendix is not removed, that leaves a foreign body there and under those conditions, it should be drained. Now, after the appendix is removed, if one sprinkles some of the sulfonamide drugs into the peritoneal cavity, one can rest more comfortably than formerly. If there is an appendiceal mass, whether from rupture or not, in the LRQ, say at the end of the 2nd to 4th day, hold with those who think better not to operate. Have pursued that policy for many years and cannot recall a case that we have ever regretted treating this way. Even at the end of the second day, if it looks like it will be walled off, it is better to wait.

What do we do after that? If a person has had that much appendicitis, he will have another attack, which may come in two months, or one month, or even less. You can tell the mother that there will be another attack and the child should be operated on immediately, when this comes. If the attack does not come, probably a month, six weeks or two months is good time to have appendix taken out: surgeons have different ideas about that.

Differential Diagnosis: It is difficult to make a diagnosis of appendicitis in children. There are many more abdominal pains that are not due to appendicitis than those that are. This is a fertile field for the allergist, but I am not able to discuss allergy in the digestive tract.

Pneumonia and pleurisy often come up for diagnosis. The pain of pneumonia is often below the diaphragm. Only those who practiced before the sulfonamide period really know anything about pneumonia; you younger fellows will never know what pneumonia is. If the pneumonia runs 24 hours, you frequently can make the diagnosis only by x-ray. In the days of real pneumonia, we would look the child over and conclude that he has pneumonia and then we would feel tenderness in the LRQ. It almost never is as far down nor as far back as the pain that comes with appendicitis, but it can be in that region. Sometimes pain of pleurisy is referred to the shoulder, depending on where the lesion is; it may run along the intercostal or phrenic. X-ray will often, but not always, reveal early pneumonia.

Gallstones or renal colic rarely enter into the problem of differential diagnosis.

Spastic colon; my experience with spastic colon is nil. Have always considered this to be a prerogative of the adult; have never seen it in a child.

Pyuria; appendicitis and pyuria, both from upper respiratory infection often occur simultaneously. Occasionally there is a pyuria which closely resembles appendicitis, with pain for a long time and finally resulting in hydronephrosis. Intravenous pyelography will clear up the diagnosis. Fifteen years or more ago was impressed with the frequency of abdominal pain with upper respiratory infection. Then I wrote a paper on "Abdominal Pain and Throat Infection." Sometimes wish I had never written it. With an upper respiratory infection, frequently have pain in the abdomen; this may be of two types—either referred to the umbilicus as a rather sharp intermittent neuritic pain, or a pain which comes on later with tenderness over most of abdomen, and this latter was attributable to lymphatic adenitis. During the epidemic of 1919, in many of the autopsies of patients dying from flu, there was enormous development of the lymphatic glands in the abdomen. I think that at least fifty percent of the cases of appendicitis in children will be found to have had an antecedent upper respiratory infection.

In the differential diagnosis between appendicitis with peritonitis and primary peritonitis, both the history and palpation are valuable. If it is an older child he can tell you where the pain started; if too young, the mother can tell you. If there is considerable peritonitis and he still feels more tenderness over the LRQ one is justified in assuming that it is peritonitis which follows appendicitis. Spoke yesterday of inserting a needle for diagnosis, but there is no "always" in medicine. Recall a girl

who seemed to have appendicitis; mother refused operation; had resident get consent for us to stick a needle in; did this and got a lot of germs which smelled like appendiceal abscess; told mother we must operate or child would die. Mother still refused, and abscess finally ruptured and child got well, which proved to the mother that her maternal instinct was right.

Twisted ovarian pedicle; have only seen two and did not make diagnosis in either; in one the resident made the diagnosis; could feel a small tumor through rectum, white count was 70,000; resident who had just come from Heine's obstetrical service asked whether it might not be a twisted ovarian pedicle, because of the white count which goes very high in some cases; in the other case, the surgeon made the diagnosis by rectal palpation.

Thursday Afternoon, May 28

A Panel Discussion on Urology had been arranged by the Program Committee, which was to be conducted by Dr. Hinman of San Francisco, with the assistance of urologists and gynecologists of Phoenix and Tucson. Dr. Hinman developed an acute illness shortly before the meeting was scheduled and was unable to attend; however, he sent his paper which was read by Dr. Wm. G. Shultz of Tucson, with the lantern slides which were sent with the paper. The paper is being published, but without the illustrations.

The Panel Discussion included the following subjects and discussants:

"Tumors of the Testis" was discussed by Dr. M. D. Day of Phoenix.

"Carcinoma of the Prostate" was discussed by Dr. John W. Pennington of Phoenix.

"Renal Water Counter Balance" was discussed by Dr. C. N. Ploussard of Phoenix, with lantern slides.

"Uretero-Intestinal Implantation and Its Application in the Treatment of Carcinoma of the Bladder" was discussed by Dr. John W. Pennington.

"Simulation of Pelvic Symptoms to the Trigonitis Due to Trauma, Trichomonas, Leukoplakia, Pyogenic Infection with Urethritis" was discussed by Dr. Preston Brown of Phoenix.

Following the close of this panel discussion, a motion sound picture on "Modern Advances in Sex Hormone Therapy" was shown by the courtesy of the Parke Davis Research Laboratory.

In the evening of Thursday, May 28, the annual banquet and entertainment for members, guests, ladies and visitors was held at the Hassayampa Hotel, filling the dining room to overflowing. A most enjoyable evening, with Dr. James H. Allen as toastmaster.

Friday Forenoon, May 29

This General Session was given over to panel discussion on the eye, ear, nose and throat in general practice.

The first speaker was Dr. Wm. A. Boyce of Los Angeles whose general subject was "Some Things About the Eyes That Are of Interest to the General Practitioner." This talk was beautifully illustrated by drawings in color, and held the close attention of the audience. Summary of salient points of the talk follows:

The first point was an appeal to the doctors in general with regard to eye examinations; the ophthalmologist feels that the examination of the eye is a medical examination and should not be turned over to a non-medical examiner. There is no functional nervous disease in which the eyes do not come into question; you must always eliminate the eyes. When the patient complains of headaches or certain nervous symptoms, indigestion, pain in the neck or shoulders, and you have eliminated the things which you think might cause these, do not dismiss the patient and say "Go and have your eyes examined." The layman knows only one kind of eye man and that is the optician. You should select an ophthalmologist and send your patient directly to him for examination. The eye will be given a thorough examination and you will be surprised at the information we can get from examination of the fundus. After you have sent the patient, this ophthalmologist will write you a letter and may say that he has found no pathology, but has found enough refractive error to give these symptoms and he will keep the patient under observation until he has relieved the symptoms due to the eye. Refraction is a medical problem. All patients under 45 require a cycloplegic, to refract the eye properly. The eye is only a camera that makes a picture which is transmitted back to the brain and you see with the brain. We have two eyes because we take stereoscopic pictures and under 45 years you require a cycloplegic to get that

picture. The rays of light will focus behind or in front of the retina depending on myopia or hyperopia. The object of the ciliary muscle is to adjust the lens and make it thicker or thinner, to focus the light rays. To get an accurate refraction, you put a cycloplegic in the eye which paralyzes the motor nerve to the ciliary muscle which then cannot act on the lens which remains in one condition and you can add other lenses which will have the effect of making the lens thicker or thinner, until you get a correct focus. After 45, the nucleus of the lens has grown so large that the ciliary muscle cannot adjust the lens, and you have to use additional glasses to see close, but the cycloplegic is not then necessary. But it is still a medical problem on account of lens changes (cataract), deposits in the vitreous, choroiditis, retinitis from old foci of infection, and the development of glaucoma. It is a medical man's problem to find these things. The ophthalmologists often see people who have lost one eye, or are losing both eyes, by acting on the advice of friends and going to non-medical men who have not found these things. Also after 45 the eyes begin to develop hypertension changes. If you send a patient to the ophthalmologist and he does not report to you on these things, you should ask him. The ophthalmologist should always write you a letter and tell you the result of his examination. If there is a beginning cataract you should know it, because these come from a focus of infection. If he is developing glaucoma you certainly should know it. If he shows the effects of hypertension in the retina, this may be the first evidence, before you find it anywhere else.

Dr. Boyce then showed colored drawings illustrating the following conditions. He commented briefly on them.

(1) Arcus Senilis.

(2) Chalazion.

(3) Conjunctivitis; do not overtreat or use too strong medicines that will irritate. Give it time and it will get well of its own accord. However, the patient with an inflammed eye is not satisfied unless he is doing something. Some mild colloidal silver preparation like silvol will coagulate the mucus and allow the tears to wash away the pus. Instruct the patient how to put it in his own eyes and apply it every hour. Use ice instead of heat and apply it 20 minutes out of each hour. Ice slows down bacterial growth, while heat simply makes an incubator. When conjunctivitis becomes chronic, they are more difficult; often a 2% mercurochrome solution put in every hour or two will cure them. If not resort to copper stick once or twice a week. If there is ciliary injection this means something more serious.

(4) Vernal Conjunctivitis; know very little about it. The less you do for it the better they are. A plain wash of some kind is the best thing. It is probably an allergy, but we do not know the cause of it.

(5) Ectropion; cannot cure by treating; requires surgery and the earlier the better.

(6) Entropion; turning in of the lids bringing the lashes against the eye. Found in nervous people and children. It is only temporary and frequently just a strip of adhesive to pull the lid out is all that is required. In an older case may be necessary to make a little incision.

(7) Blepharitis; inflammation of the lips, either ulcerative or non-ulcerative. Non-ulcerative type due to eczema, allergy or refractive error. Ulcerative type not so simple. Soften up the area and then apply 5% sulfathiazole ointment which will usually cure them; of course must correct the refractive errors.

(8) Dermatitis of the lids.

(9) Lachrymal apparatus. Sometimes have a congenital occlusion of the tear duct, which will need to be operated on. Teach the mother to milk the material out of the duct and if the pus continues to come back into the eye, push a probe through the obstructing membrane at the lower end of the duct, which is where it usually fails to open. A lachrymal fistula may result if allowed to go on.

(10) Dacryocystitis; very likely to diagnose it as an erysipelas. Requires surgery under general anesthesia; local is not effective as patient must be quiet. Incision down to the bone to be sure of getting the sac. Be sure to get the pus and obliterate the sac by wiping with trichloracetic acid every day with packing.

(11) Orbital abscess. Frequently due to insect bite. Wait until it localizes, using hot applications; then drain with a wide incision; sometimes ethmoiditis will break into the orbit and form abscess; do not be in a hurry; let it localize and then incise.

(12) Subconjunctival hemorrhage. Due to breaking of small blood vessel; usually does

not amount to anything, but always excites the patient. In people past middle life, it calls for physical examination to see if they have hardening of the artieries.

(13) Gonorrheal Ophthalmia. Not seen so often now, but may occasionally have a case, especially where midwives are allowed. Used to figure on losing sight in 25% of children and 50% of adults with this condition. With sulfonamides, do not fear gonorrhea any more and should not lose the eye. Make an emulsion of sulfonamide so that it contains ¾ grain per pound of body weight per day, given in the food, so that it will keep up a concentration for five or six days. In a few days the edema subsides and the eye begins to assume its normal color again. Must have these cases in a hospital under nurse's care because the eye must be bathed and irrigated to prevent corneal ulceration. Adults is treated the same way.

(14) Panophthalmitis. Cannot save the eye. Probably evisceration is better than enucleation.

(15) Follicular conjunctivitis; Trachoma. Large doses of Vitamin A and sulfonamide (1/3 grain per pound per day over a period of about three weeks) cures practically all cases of trachoma.

(16) Sequellae of trachoma. Trichosis; split the lid and take out the hair bearing margin. Pannus; as long as it has blood vessels the trachoma is active; when the trachoma is cured by sulfanilamide the pannus will disappear.

(17) Burns of conjunctiva; problem is to prevent adhesion; no good way to do this; keep ointment on and with glass rod break adhesions to see if burn will not gradually heal; if not and you get an adhesion symblepharon, it is not so simple.

(18) Phlyctenular conjunctivitis and Pannus. Always thought to be tuberculous in origin; if they are, they will usually clear up on the proper treatment. More serious on the cornea because of the scarring which may cover the cornea and interfere with vision. Put them on general treatment for tuberculosis. Local treatment to the eye not necessary unless cornea is involved. Ulcers of the cornea; it is better for the general practitioner not to try to treat.

(19) Leucoma. Sometimes have injuries about the limbus with prolapsed iris. Do not try to replace the iris but cut it off. If you have to treat them, treat as if it were your own. You must kill the staphyloeocci. It is like any other ulceration except for its location. Anesthetize the eye thoroughly, wipe out all slough and cauterize thoroughly with trichloracetic or phenol. If it still stains with fluorescin, try it again. Can use caustic every day and if it still spreads use actual cautery. It is the ulceration which produces the scar and not the caustic; you limit the scar by cautery. Do not put anesthetic ointment in the eye and cover it up; better give the patient something to take; there is no such ointment that is not damaging to the eye. Do not depend on cocaine and other anesthetics in the eye; put in atropine and then apply a tight bandage to keep them from rubbing the eye.

(20) Hypopyon; occurs when an ulcer—usually pneumococci—erodes through the cornea; means that there is a malignant infection.

(21) Interstitial keratitis. So long as we have syphilis with us, we will be seeing this; may occur from three years to twenty years; usually hereditary; never forms ulcer, never stains. Eyes congested, photophobia; blood vessels come into the cornea; salmon bodies. Local treatment not necessary. Some cases have been treated by malaria injection; usually takes three months to a year before the eye clears and then frequently have scars. Cases treated with malaria have 12 to 14 chills and by the time chills are over the eyes are well. This is good treatment. Where can you get the malaria? Cannot tell you this. Los Angeles General Hospital keeps a strain going all the time. Have not had any case in the other eye when malaria was given.

(22) Dendritic keratitis. Fluorescin stains peculiar figures on the cornea which is insensitive. This reduces the vision and must be stopped. Evidently due to virus; frequently occurs in malaria. Anesthetize the eye with something other than cocaine and then paint the whole cornea with 7½% iodine; then 4% cocaine and then wipe the whole epithelium lining off the cornea; apply bland ointment and patch over the eye. They may recur due to iritis.

(23) Staphyloma from injury.

(24) Keratocornea.

(25) Keratoglobus; big eyes due to closure of canal of Schlemm. Goes blind by time child is three or four years old; get hold of the case

when three or four months old and can save the vision by operation.

(26) Pterygium. Due to irritation. No treatment needed until they begin to get over the cornea; they must be removed thoroughly if you wish to prevent recurrence. While they are of low grade malignancy they keep recurring.

(27) Corneal scar. Should admit some light to prevent eye from turning in.

(28) Iritis. Requires physical examination to determine what lies back of it—usually some focus of infection.

(29) Herpes. Frequently have herpes about the eye, and may be on the cornea. Try the blood injection treatment; ten c.c. of patient's own blood withdrawn and reinjected under the skin; every day for ten days. Diphtheria antitoxin has been used and is often effective; if it fails, try the blood injection.

Dr. Paul Case (Phoenix): Though this talk was primarily for general practitioners, the eye men can get much out of it. Simple blepharitis was mentioned: this often occurs with a seborrhea of the scalp which must be cleared up before you get permanent results. With regard to trachoma and sulfanilamide, many have wondered what would happen if we give some of the other sulfa derivatives. About two weeks ago, Dr. Forester, of the Indian Service, said that he had tried the other preparations and that sulfanilamide was the only one which is efficacious; we will save time if we do not experiment with other preparations. It might be emphasized that the general practitioner is the responsible factor in glaucoma. In the past year have seen two cases of acute glaucoma; one had been treated for 24 hours and the other for 72 hours for vomiting. The vomiting of glaucoma is severe and often is the dominant symptom. When you, as general practitioners, run into a case where you do not find a special reason for the vomiting, or if there is pain in the eye, take a look at the eye and see if there is a steamy cornea, or feel it and compare with your own eye. If there is glaucoma get him into the hands of an ophthalmologist immediately because urgent treatment is required.

Dr. Kibler: Why would not other forms of fever therapy be effective, instead of malaria? Answer: Probably they would, though more difficult to give. It is the fever and not the malaria that is effective.

Dr. A. J. Ridges of Salt Lake City then read a prepared address on "Headaches and Diseases of the Accessory Sinuses." Paper to be published in Southwestern Medicine.

Dr. O. W. Thoeny of Phoenix opened discussion: Two things mentioned are particularly interesting. Knows a patient with mild degree migraine; his grandfather had it, his father had it and one son has it; patient also has some allergy. Thinks connection between allergy and migraine is important. The second thing was the conservatism which it hoped the general practioners will take note of.

Dr. C. R. K. Swetnam was called to the chair to preside, and introduced Dr. Howard House of Los Angeles who read paper on "Diseases Related to the Ear." Paper to be published.

Dr. Jewel Smith of Phoenix opened discussion: He emphasized one or two things. Our summer is coming on, our swimming places will soon open, and we will have much external otitis or furunculosis. Do not incise these cases; they are primarily a cellulitis; incision is not satisfactory because you have to give general anesthetic and nothing will be accomplished. Tell the patients that they will have considerable pain, give codeine, empirin, hot packs and attempt to control them in this way. The thing most pleasing about Dr. House's paper was the great detail in explaining things; it is these little things that often make for success or failure in treatment; for example, in nasal shrinkage, giving the patient nose drops to be taken one or two several times a day is not enough. The tendency is to give too little and not often enough. Also thinks that nose drops of argyrol or neosilvol are superfluous. If you can get shrinkage that will accomplish the purpose for which you are giving the nose drops, either for sinus or middle ear infection. Once in a while see a case of argyria, usually not the fault of the doctor, but because the patient continues to use the argyrol or neosilvol long after leaving the doctor. If such preparations are prescribed, use a non-refillable prescription.

Dr. Swetnam: Would like to emphasize one point. The doctor spoke of doing a mastoid to prevent trouble. Do not know how many of you have to meet that situation, but I often do. Parents are afraid of doing any surgery for fear that it will impair the hearing. Fre-

quently see cases where they say the hearing is bad because of a mastoid operation, when, as a matter of fact, the impaired hearing is due to something else. In particularly, general practitioners, when you see a child with a running ear and you want to refer him to a specialist, emphasize the fact that operation is more likely to save the hearing than to impair it. Also the use of sulfonilamide; the older men do not know so much about that; do not know how many of you have had the misfortune to operate a case which has been treated too long with sulfonilamide, and you find on operating that the destruction is very extensive; the doctor's point about stopping after two weeks to see how it is getting along is a very good one.

Dr. Henry Running: How about the acute ear, say after a 12-hour period, temperature and pain is gone and there is still considerable bulging? Child is relieved and there is no pain or temperature, what harm can happen if ear is not opened? Also want to know about the use of spray in pediatrics. Sometimes putting drops in the nose, sitting on the child and clamping the nose makes it hard to convince the mother that you are not killing the child.

Dr. House: With regard to the first question; pain is the most important sign and if the pain is relieved after 12 hours of conservative treatment, regardless of whether you have a bulging ear or not, it is safe to let it subside spontaneously. You may have a catarrhal infection and the ear may bulge for two or three weeks and subside spontaneously; that is, unless you get an exacerbation and then it is acute. It is definitely dangerous to open that kind of ear because nature is taking care of it and you are inviting further infection. As to drops vs. spray—it is entirely a matter of personal choice. The most important thing is to put some drops in and wait until the front of the nose opens up.

Luncheon Meetings, Friday Noon, May 29

Two luncheon meetings were held. One was for the Eye, Ear, Nose and Throat group, at which the speakers were Drs. Henry S. Rogers, Howard P. House, Wm. A. Boyce and A. J. Ridges.

At the other luncheon, a Panel Discussion on Non-Tuberculous Infections in the Chest was conducted. Dr. Fred Holmes of Phoenix presided and the speakers were Dr. Leroy U. Gardner and Dr. Homer L. Sampson. This was an informal discussion from films supplied by Dr. Holmes.

Friday Afternoon, May 29

A Symposium on Silicosis was held, this having been arranged by the Committee on Industrial Health's Subcommittee on Silicosis. An elaborate exhibit on Silicosis occupied one end of the meeting hall, and mimeographed copies of the Subcommittee's preliminary report and descriptive guide to the exhibits was distributed.

The discussion leaders were Dr. Leroy E. Gardner of Saranac Lake, N. Y., followed by Dr. Don E. Cummings of Denver, Colo., with Dr. Homer Sampson of Saranac Lake closing.

This symposium brought the General Session to a close. The talks by these three discussants were from lantern slides, and this made it impossible to reproduce their remarks in any kind of order.

While this General Session was going on, the Eye, Ear, Nose and Throat Section was holding simultaneously, with Dr. C. R. K. Swetnam of Prescott presiding, and three papers were presented, as follows:

"The Nasopharynx" by Dr. A. J. Ridges of Salt Lake City.

"Surgical Procedures of Interest to the Otolaryngologist" by Dr. Howard P. House of Los Angeles.

"Anesthesia and Measures of Safety in Ophthalmic Operations" by Dr. Wm. A. Boyce, Los Angeles, Calif.

Friday Evening, May 29

A public Meeting closed this Convention, this being held in the High School Auditorium, and was a combination of motion pictures and brief talks—on Cancer, Tuberculosis and Immunization, the speakers being Dr. E. Payne Palmer of Phoenix, Dr. John W. Flinn of Prescott and Dr. Felix G. Manning of Phoenix.

Scientific Exhibits

Four very excellent scientific exhibits were an important part of the general scientific program, as follows:

"Treatment of Fractures in Children" was the title of an excellent exhibit by Dr. Louis W. Breck and Dr. Compere Basom of El Paso, this being presided over by Dr. Breck. The exhibit presented various problems which come up in the treatment of fractures in children and stressed particularly the importance of conservative rather than operative treat-

ment. The exhibit included models, photographs and x-ray reproductions.

"Silicosis and Lung Diseases Resembling Silicosis" exhibited by the Subcommittee on Silicosis of the Arizona State Medical Association, filled three large viewing boxes, with about eighty large chest films. The films were loaned by members of the Committee and others. This exhibit has been reduced to lantern slides and is available for any use to which county society groups may want to put it.

"Exhibit on Heart Diseases" by Dr. Chas. S. Kibler of Tucson was located in the lobby of the Hassayampa Hotel and attracted a constant stream of interested observers. Dr. Kibler spent much time there explaining the various charts, photographs, x-ray films and other data.

"Exhibits on Cancer" was supplied by Dr. E. Payne Palmer, Sr., and Dr. E. Payne Palmer, Jr., showing many charts and diagrams to illustrate the advances being made and problems facing the medical profession in the fight on cancer.

—Reported by W. W. Watkins, M. D.

MISCELLANY

MANIFESTATIONS OF CLINICAL ALLERGY

(Types of Allergy responsible according to probable frequency)

1. Bronchial asthma, allergic bronchitis, and croup
   (a) foods (b) inhalants (c) drugs (d) bacteria.
2. Nasal Allergy (hay fever)
   (a) *seasonal* (1) pollen (2) animal emanations (3) dusts (4) orris root, pyrethrum, kapok, cottonseed, silk, etc. (5) foods (6) bacteria.
   (b) *perennial* (1) animal emanations and dusts (2) foods (3) orris root, pyrethrum, kapok, cottonseed, silk, etc. (4) bacteria.
3. Atopic Dermatitis (due to blood borne allergens)
   (a) foods (b) pollens (c) animal emanations including silk (d) orris, pyrethrum, kapok, cottonseed, etc. (e) house and other dusts (f) infectants—fungi, bacteria.
4. Urticaria (superficial skin capillaries are shock tissues)
   (a) foods (b) drugs (c) bacteria (d) inhalants (e) parasites (f) physical allergy.
5. Angioneurotic Edema (deeper blood vessels of skin are shock tissues) (causes under No. 4)
6. Contact Eczema (epidermal cells are sensitized)
   (a) contactants of all types responsible (b) the patch and not the urticarial immediate type of skin reaction occurs.
7. Acne—Possible allergic etiology? Abnormal fat metabolism more important.
   (a) foods (b) inhalants (c) drugs—including halogens (d) infectant allergies (?)
8. Migraine, sick headaches, cyclic vomiting, and recurrent bilious attacks
   (a) food (b) bacteria (c) inhalants. Recurrent peripheral neuralgia and paresis and idiopathic epilepsy at times due to allergy.
9. Gastrointestinal allergy (canker sores, oral and pharyngeal inflammation, distention, pyrosis, nausea, vomiting, abdominal cramping and pain, diarrhea, constipation)
   (a) foods (b) drugs (c) bacteria and parasites (d) inhalants.
10. Ocular—seasonal and perennial conjunctivitis, recurrent iritis and corneal ulcers, blepharitis, ocular and orbital pain. (See migraine)
    Inhalants and foods are most important and vary according to the manifestation. Drug and bacterial allergy are also important.
11. Miscellaneous
    (a) cardiovascular (1) susceptibility to transient cardiac irregularities (?) (2) periarteritis nodosa (?) (3) erythema nodosum and multiforme (4) glomerulonephritis (?) (5) hypertension (occasional case)
       (a) foods and drugs (b) bacteria (c) inhalants (?).
    (b) arthropathies (1) possible role of food and bacterial allergy in rheumatoid arthritis (2) intermittent hydrathrosis
    (c) urogenital (1) allergic cystitis (2) spasm in ureter and bladder (3) Hun-

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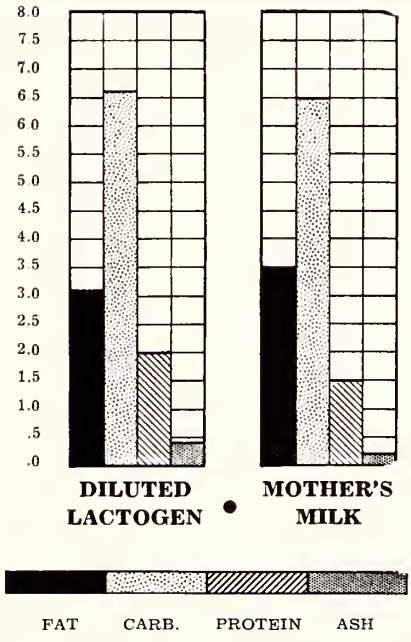
My own belief is, as already stated, that the average well baby thrives best on artificial foods in which the relations of the fat, sugar, and protein in the mixture are similar to those in human milk."

John Lovett Morse, A.M., M.D.
Clinical Pediatrics, p. 156



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ner's ulcers (?) (4) vulval canker-like lesions and inflammation
(a) foods (b) drugs (c) bacteria (d) inhalants.
(d) allergic toxemia
(a) foods (b) pollen.
(e) allergic purpura, agranulocytosis
(a) drugs (b) foods (c) bacteria (?)
(f) unexplained fever
(a) foods (b) inhalants (c) drugs (d) infectant allergies.

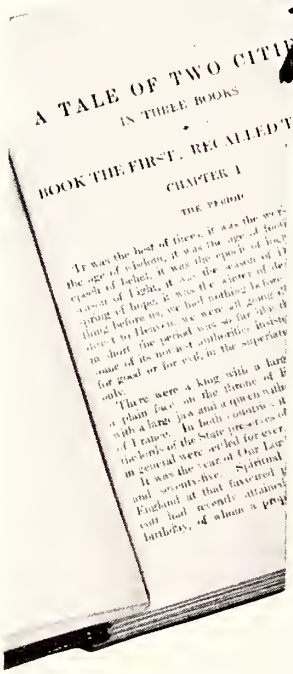
—*Journal-Lancet.*

GILDING THE LILY

It is an attractive thought that we have entered a new era in Medicine—such is dramatically shown by the illustrations in the various women's magazines heading articles on Modern Medical Miracles, wherein young Dr. Kildare peers into the distance with eyes, hawk-like, seeing only *The Pure Truth.*

We laugh at the old story of the Scotchman who was told that one pill would fix him up—thereupon he took five so that the job would be done that much more expeditiously and completely. Yet it is not infrequent that Mrs. Obstetrical Case walks out of her physician's office with prescriptions requiring five separate pills packed with dynamic fulfillments of her various special needs. Her bag rattles with these magic pellets as she leaves the pharmacy.

If we exclude cases of obvious dietary deficiencies, the average American diet is sufficient for the needs of pregnancy in all but one or at most two vitamins—a lack felt most during the long winter months. Energy, protein, mineral, fluid, and vitamin requirements are satisfied to an astonishing degree, various studies have suggested. Vitamin D. is the only consistently deficient factor in the daily diet, and even this can be returned to satisfactory levels by adequate sunlight converting the skin oils. Vitamin A rarely needs supplementary measures. Adequate calcium is supplied by increasing the patient's milk intake by a pint to a quart daily in the latter half of pregnancy. The dental profession has not been able to demonstrate conclusively that calcium deficiency is the cause of caries so frequently associated with pregnancy. Excess calcium ingested is lost through the feces.



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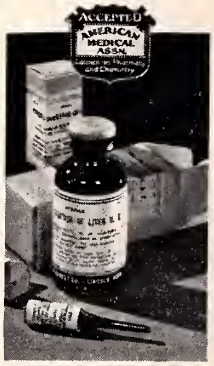

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The iron requirement is satisfied by moderate ingestion of green vegetables and milk. Often addiction of iron to the diet will serve only to emphasize the capricious gastrointestinal problems of pregnancy, either increasing or retarding motility. Even small dosages of iron will color the feces as evidence of unnecessary ingestion. The physiological hemodilution of late pregnancy makes it extremely difficult to attain nonpregnant hemoglobin levels, despite heavy therapy with "anti-amenic regimes."

Subclinical or asymptomatic vitamin deficiencies have been described throughout the literature. Our information is as yet too scanty to give absolute credence to many of these reports. Certainly there is no consistently positive clinical evidence outside of the laboratory animal of the need for vitamin E in the pregnant human female. Nor is there evidence demanding more than the morning glass of orange juice.

Calculating the cost of the average adjunctive therapy given to many obstetrical patients for these deficiencies in their diets costs from 12 to 18 cents a day, when these various agents are supplied in the advocated doses. Actually, an increased supply of vitamin D (which crude form usually contains as well sufficient vitamin A) can be procured for the cost of one cent a day.

If the physician is impressed with the fetal needs, one may point out the oft-observed fact that a mother dying of starvation will bear an ostensibly normal child, in good health, purchased at the cost of her own nutrition. We all are familiar with the too-rapidly-pregnant, too-young grand multipara whose snaggled teeth, overstretched tissues, and hopeless demeanor confounds us in our clinics and charity work. Yes, these patients often show dietary deficiencies (as do their husbands and children), but the drain of pregnancy is far greater than any which can be blamed upon the simple deficiency. More rational therapy is directed to ward prevention of too-rapid pregnancies rather than toward the dietary lack alone. Indeed, financing these patients to a superabundance of vitamins and minerals often is more difficult than prophylaxis.

Yes, there is tremendous drive in the present vitamin knowledge. However, gilding the lily

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Mead's Brewers Yeast contains the entire vitamin B complex, including thiamine, riboflavin and nicotinic acid. It may be given in tablet form and/or in powder form. The powder may be quickly shaken up with milk in an ordinary cocktail shaker. It also mixes well with tomato juice or ketchup.

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has been since Biblical times a very human failing.—*West. J. S. O. & G.*

FEVER CHEMOTHERAPY

1. After a decade of rich and constantly enlarging experience with physically-induced artificial fever therapy, the successful results achieved by many workers in many lands are sufficiently comparable to justify the categoric statement that artificial fever therapy is at least as effective as malaria therapy in the management of symptomatic or asymptomatic neurosyphilis. In the hands of many reliable investigators artificial fever therapy has yielded significantly superior results. Patients who have not responded well to malaria therapy have been benefited by subsequent artificial fever therapy.

2. There is unmistakable evidence that the extent of clinical improvement in neurosyphilitic patients is related directly to the height and the duration of fever. The thoroughly documented analyses made by statisticians of the U. S. Public Health Service provide proof that the clinical responses were distinctly inferior when relatively low temperature levels were employed. There is no longer any valid reason to assume that the malaria plasmodium exerts any specific effect upon Spirochaeta pallida.

3. Several investigators who have had long experience with malaria therapy and with artificial fever therapy have abandoned malaria therapy in favor of artificial fever therapy. This decision was determined largely by the observations that patients tolerate artificial fever therapy more readily, that a high proportion of neurosyphilitic patients can be treated with artificial fever on an ambulatory basis without interruption of gainful employment, and that treatment complications are minimized with artificial fever therapy.

4. Since continuous hospitalization is not a requirement for the artificial fever treatment of most neurosyphilitic patients, the cost of the treatment is not necessarily greater than with malaria therapy. If the patient remains at his regular employment during the course of artificial fever treatments, the cost is usually much less.

5. The employment of auxiliary chemotherapy in conjunction with any type of fever therapy is an essential requirement. There is

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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evidence that the concurrent use of chemotherapy with artifieial fever therapy increases the therapeutic effectiveness of both ageneies.

6. The hazards inherent in the various physical modalities used for the produetion of artificial fever during the first few years of the undertaking have been largely eliminated. Recognition of the physiologic ehanges produeed by fever has led to the utilization of means to combat such effects. A procedure whieh was looked upon as a technical feat a decade ago may now be applied by skilled workers with a frequency which approaehes routine.

7. Developments of the past few years have demonstrated that equally favorable clinieal and serologic results may be obtained with fewer total hours of artificial fever therapy, applied in shorter individual sessions at more frequent intervals. This practice permits the treatment of more patients at less eost.

8. The excellent results following the use of combined fever-chemotherapy in eases of asymptomatic neurosyphilis indieate that the patients' best interests are served by the prompt administration of this form of treatment.—*Ohio St. Med. J.*

BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

A TEXTBOOK OF GYNECOLOGY: By Arthur Hale Curtis, M. D. Professor and Chairman of the Department of Obstetrics and Gynecology, Northwestern Univ. Medical School; Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. Fourth Edition. 723 pages with 401 illustrations. W. B. Saunders Co. 1942. $8.00.

The fourth edition of this excellent book needs little in the way of comment other than added praise. There are many changes in the text from the older edition, all for the betterment. There is improvement in the discussion of pelvic anatomy and much has been added in a discussion of pathology of uterine myomata.

The most important ehange in the volume is in the diseussion of ovarian tumors. This has been entirely re-written and is of extreme value. Likewise, the chapters on gonorrhea have been almost entirely re-written in the light of modern therapeutic procedures. The volume contains 723 pages and is an excellent example of the book-maker's art. It can be recommended without reservation.—*L. O. Dutton.*

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SYNOPSIS OF PATHOLOGY, By W. A. D. Anderson, M. A., M. D. Assistant Professor of Pathology, St Louis University School of Medicine; Pathologist, St. Mary's Group of Hospitals. C. V. Mosby Co., 1942. $6.00.

This excellent volume of 638 pages is exactly what is indicated by its title. The discussion of each pathologieal entity is clear, concise and condensed to the point of the presentation of only the immediately useful outline that the general man might wish to consult without having to pour through the wealth of detail that is customary in the useful textbook of pathology.

There is a wealth of illustration, mainly of growth pathology, and a number of excellent color reproductions. The material covered is broad, and on the whole, this constitutes a quite comprehensive review source for the busy reader who wishes to quickly get the essential pathological features of most of the common disease states.—*L. O. Dutton.*

TREATMENT IN GENERAL PRACTICE (Fourth Edition). By Harry Beckman, M. D., Professor of Pharmacology, Marquette University School of Medicine Milwaukee, Wisconsin. 1015 pages. W. B. Saunders Co. Philadelphia & London. Price $10.00.

The fourth edition of this excellent text contains a wealth of new material considered in the same level-headed manner that the author has used previously. Each entity is discussed in fair detail, but the emphasis is always placed on therapeusis. In most instances the author is inclined to be conservative, but there is no lack of detail, even though broad therapeutic principles are well considered.

The author's style is inimitable and he manages to inject a freshness of viewpoint with occasional dashes of humor that make the reading of this scientific text a delight. This book should certainly be in the hands of all doing general practice, and the specialists will find much of value therein. The volume is of excellent workmanship.—*L. O. Dutton.*

THE CARE OF THE AGED (GERIATRICS) By Malford W. Thewlis, M. D. Attending Specialist, General Medicine, United States Public Health Hospitals, New York City; Attending Physician, South County Hospital, Wakefield, R. I.; Special Consultant, Rhode Island Dept. of Public Health. The C. V. Mosby Co. St. Louis, 1942.

The fourth edition of this valuable book is an indication of its usefulness. In spite of so quickly following the third edition, the book contains many valuable changes and additions. Respira-

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tory infections, liver function, blood transfusion, and clinical deysimetry, surgical application of chemotherapy, a discussion of fractures, anesthesia, and statistical charts of 1940 are of importance.

The general make-up of the book is the same as that of the previous edition. Discussed are general problems of old age and pathological conditions peculiar to old age, as well as a number of miscellaneous problems dealing with the aged.

In this day of increasing age of the population, such a volume is a valuable addition to any practitioner's library, as our proportion of elderly patients is steadily inceasing. The book contains 589 pages, is well organized and of excellent typogaphy.—*L. O. Dutton.*

STANDARD NOMENCLATURE OF DISEASE AND STANDARD NOMENCLATURE OF OPERATIONS. Edited by Edwin P. Jordan. M. D. 1022 pp. $4. American Medical Association, Chicago, 1942.

This book is most useful to hospitals, and if widely adopted, would help standardize nomenclature to a desirable degree. Medical schools might do well to introduce all undergraduate students to this volume.—*M. P. S.*

Military Surgical Manuals Volume II — OPHTHALMOLOGY AND OTOLARYNGOLOGY: Prepared and Edited by the Subcommittees on Ophthalmology and Otolaryngology of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. 331 pages with 124 illustrations. Philadelphia and London: W. B. Saunders Company, 1942. Price $4.00.

This is the second in a projected series of manuals for the medical officer in the armed services.

Like its predecessor, this volume is short, sweet and to the point. No windy passages of maybes, ifs and on-the-other-hands are used as space fillers. Rather it is a brief, clear set of directions as to what to do and how to do it as regards both diseases and injuries of the eye, ear, nose and throat.

Although the book is primarily intended for Army and Navy doctors, there is plenty of sound information that all physicians should know. It is written by a staff of experts, and is a commendable piece of work.—*M. P. S.*

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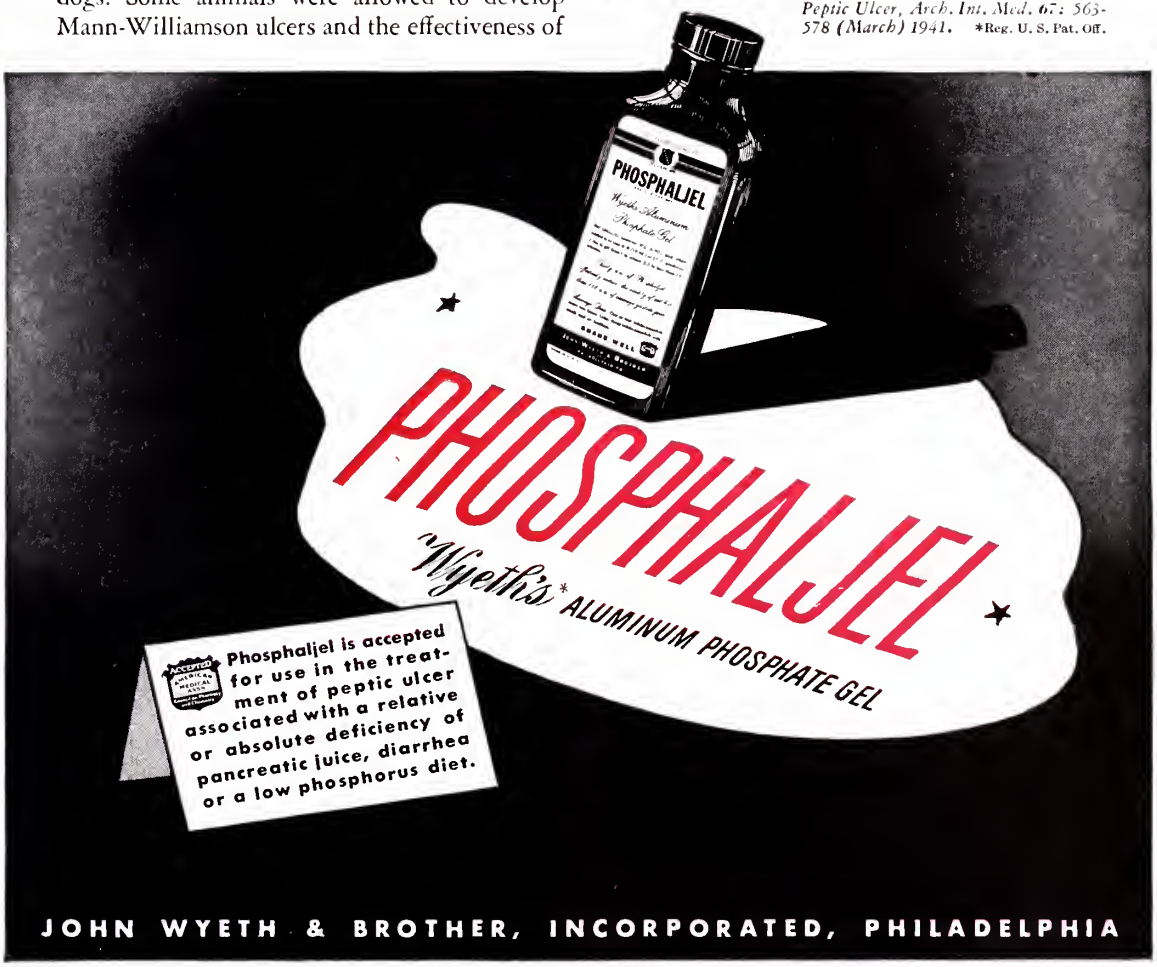
[1]*Fauley, G. B.; Freeman, S.; Ivy, A. C.; Atkinson, A. J., and Wigodsky, H. S.: Aluminum Phosphate in the Therapy of Peptic Ulcer, Arch. Int. Med. 67: 563-578 (March) 1941.* *Reg. U. S. Pat. Off.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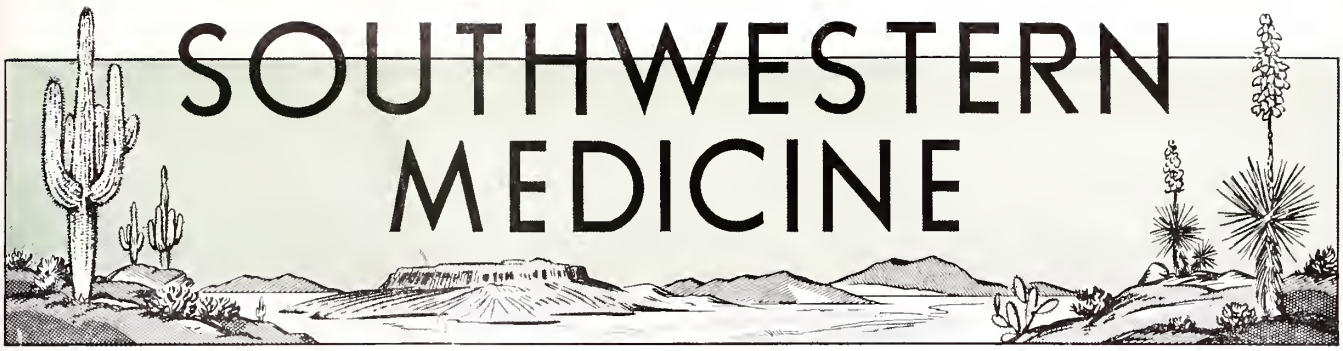

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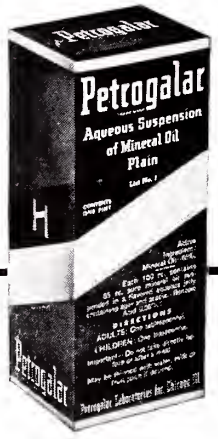

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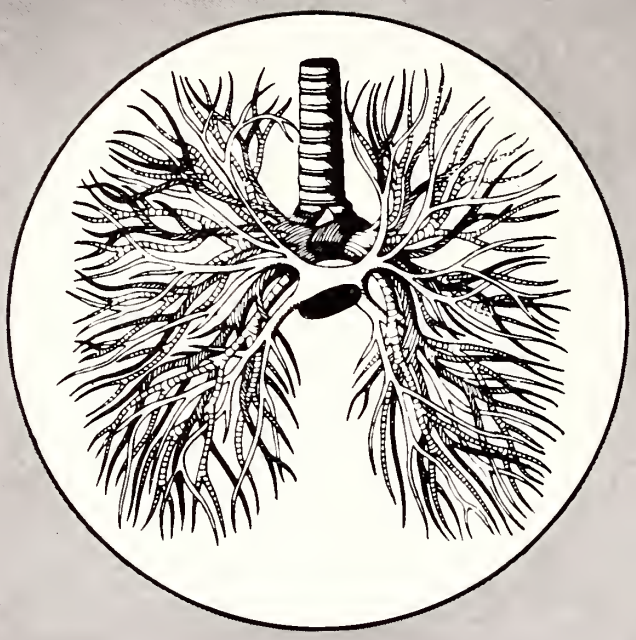

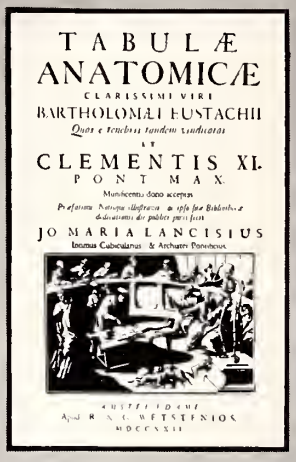

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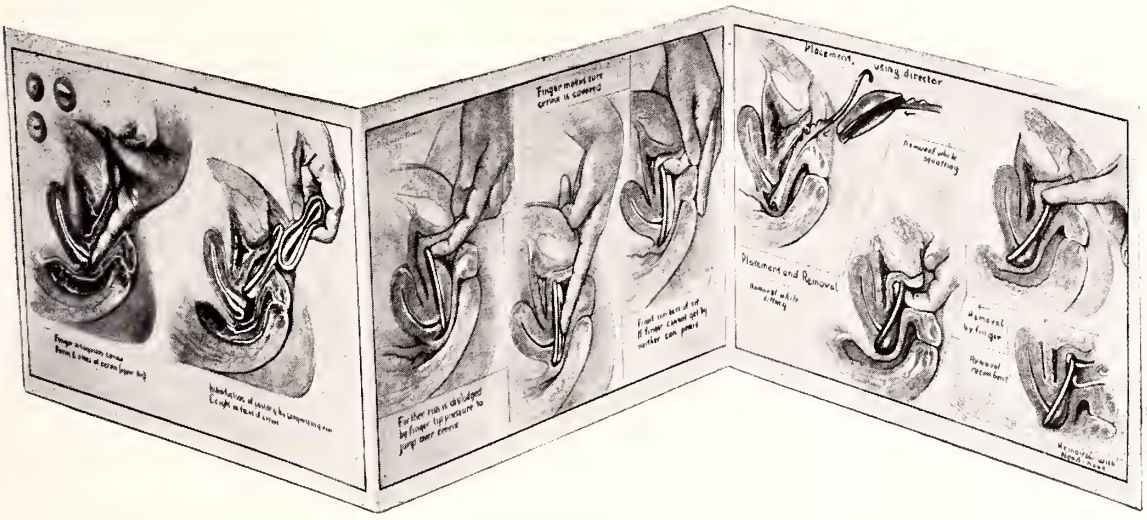

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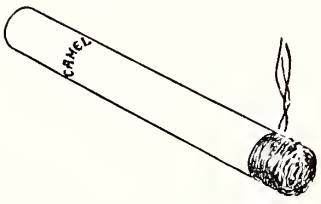

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Some of the more common correctible surgical conditions that are being cared for are varicocele, hydrocele, chronic appendicitis, hernia, chronic tonsillitis, deviated septum, pterygium. The far-sightedness of the Navy in the sponsoring of this program of rehabilitation will have only good results. It gives the sea-going service a longer reach into the man-power barrel, and when these sons of the Navy blue come home again they will be in prime condition to take their parts in the tasks of post-war America. The project is sensible, sound and well executed. The Navy is rendering a great service to America's young men, her fighting sons.

FOR THE NEW YEAR

This time a year ago black clouds of disaster were rolling over this land of ours. None knew where he might be in the days to come. Many of our brothers were in the Army or Navy, and others were to go in the months to come. Some could not realize, in the stunned existence of the first few weeks, that terrible danger had fallen upon America. Others, alarmed and angered, gave up all they had laboriously built to go to the front line of resistance against the hated enemy.

So for the past year there has been training and preparation for the final great offensive actions against the enemy. Too, delaying defensive operations have been carried out all over the world. Some of our Southwestern colleagues have fallen in these battles. Many more, scattered over the world, will die for America, for you and me, before the day of peace comes. Now, as the time for America's great battles draws near, and the dawn's early light seems closer, say a prayer in your hearts this year's end that our friends and colleagues come safely home with victory. And resolve anew to keep the home fires burning for those men now gone from their beloved Southwest. They will need you when they come marching home, even as you need them now.

THE LITTLE HELPERS

When a house catches fire you'll often find the neighborhood scalawags rushing in to heave the family chinaware out of the bedroom windows.

Presently a group called "The New York Physicians Forum" gallops up to the war scene with loud shouts about the alleged failure of the Procurement and Assignment service. This is the Boas-Atkinson sponsored little wilful body, with a new and fancy name. It is the same old story—a few objectors gather under a banner with an all-claiming device, and get attention all out of proportion to their numbers and actual prestige.

It is true that the Procurement and Assignment service has not attained perfection, but it

would be a hell of a note to repudiate and abolish this service on the say so of a small handful of self-anointed guardians of the public weal. On the contrary why don't these fancy-named panacea peddlers join the great number of earnest, patriotic physicians who have labored without thanks and without pay to solve the many-sided problem of medical care for industry, the civilian population and the armed services? Instead of trying to destroy, why not now help to create, and cease the belligerent tone of their name-calling? Surely, not all the thousands of doctors working with the P. and A. are fork-tailed devils.

Tumors of the Testis

MERRIWEATHER L. DAY, M. D.
Phoenix, Arizona

TUMORS of the testis are relatively rare. Hinman[1] has made a thorough statistical study of the subject and states that they comprise 0.58 per cent, or approximately one in every 200, of all malignant tumors in men. His study further shows that approximately one in every 1,500 male admissions in general hospitals is for tumor of the testis. To January, 1928, only 102 cases had been seen in the Mayo Clinic.

Either testis may be affected with approximate equal frequency and over twenty-four instances of bilateral involvement, mostly in cryptorchids, have been reported.

Undescended testes are more prone to develop malignancies than the normally placed gland, but this tendency has probably been over estimated. At any rate it is not of sufficient frequency that one should advise the removal of an intro-abdominal or inguinal testis on the basis that it may subsequently become malignant. The exact frequency is not certain, but Hinmon collected a series of 728 testicular tumors variously reported in which 11.2 per cent were in undescended testes. The inguinal testis has a greater tendency to become malignant than the intra-abdominal testis, possibly because it is more subject to trauma, pressure, and irritation, or possibly because inguinal retention is more frequent than abdominal. All ages are affected, however, the greatest frequency for teratoma is from 20-30 years and for seminoma, from 30-40 years. Mixed tumors are usually present in children, but they may also have teratoma.

ORIGIN AND CLASSIFICATION

There are three main sources of origin for tumors of the testis:

1. They may arise from totipotent sex cells which may be misplaced primordial germ cells capable of reproducing any tissue within the body.

2. They may arise from a fetal rest or isolated blastomere.

3. They may arise from an adult tissue cell of the testis.

Ferguson's[2] classification of these tumors has clarified the entire picture of the disease and has made possible the differential diagnosis as to their degree of malignancy. He classified these tumors into five groups, with an increasing degree of malignancy in each succeeding group.

1. Adult cystic teratoma. This tumor is composed of many different types of relatively well differentiated tissue such as bone, cartilage, muscle, etc. It may remain benign for years before undergoing malignant changes. Metastases occur largely by lymphatics and direct extension, but may invade the blood stream late.

2. Seminoma. This tumor grows rapidly and becomes larger than any of the testicular neoplasms.

3. Embryonal carcinoma with lymphoid stroma attains medium size and is a rather soft, smooth and elastic tumor.

4. Embryonal adeno-carcinoma. This is one of the most malignant growths of all cancers. It frequently metastasizes before it has reached any appreciable size.

5. Chorionepithelioma. This is one of the least common testicular tumors. It originates in the rete testis and may metastasize before there is any gross enlargement of the testes.

All of the latter four tumors metastasize widely by both blood stream and lymphatics.

DIAGNOSIS

Early recognition of malignancies of the testes is the only hope of satisfactory treatment. This is of such great importance that suspicious

swellings should be thoroughly investigated immediately, precluding an observation period during which time metastases may occur.

The history of trauma preceding the development of testicular tumors is frequent enough to cause every physician and surgeon to regard testicular injuries seriously and to observe the patient until the gland has returned to its normal size. Frequently such injuries are seen by physicians treating industrial and insurance cases. The industrial commission or the insurance company is usually anxious to settle the case as soon as possible and due to this fact, the patient is often discharged when the period of pain has ended, little regard being given to the testicular enlargement.

There are no classical symptoms of an early tumor of the testis. The patient at first observes a gradual painless enlargement which is often accompanied by a sense of weight or fullness in the scrotum. Upon palpation, it is often found that the testis has lost its normal sensibility. If metastases have occurred, the patient usually complains of symptoms relative to the location of the secondary growth. Since the lungs and retro-peritoneal lymph nodes are the earliest recipient of metastases, the patient is likely to complain of pulmonary or abdominal symptoms.

Grossly the testis retains its normal ovoid shape, the enlargement is symmetrical and it is usually freely moveable within the scrotum. The inguinal lymph nodes are usually not involved unless the scrotal skin has been affected because the lymphatic drainage of the scrotum is different from that of the testis. I have, however, observed one case of embryonal carcinoma, in which the inguinal nodes were affected without apparent involvement of the scrotal skin. The retro-peritoneal glands probably were also involved but there were no pulmonary metastasis. The hormone test was negative, but later became positive. This patient lived comfortably for four years following orchidectomy, resection of the inguinal nodes and radiation therapy. If he had reported for more adequate radiation as was advised, it is believed that his life could have been extended considerably longer.

The diagnosis of tumor of the testis is largely a matter of exclusion and in the differential diagnosis, one should consider the following conditions:

1. Hydrocele. Most all hydroceles will transmit light. Occasionally those with thick fibrotic sacs or in which hemorrhage has occurred (hematocele) will not.

2. Spermatocele. This is a cyst of the epididymis and is usually small enough so that the testis can be palpated as being normal in size and distinct from the cystic swelling.

3. Gumma. This condition closely resembles a true testicular neoplasm. The Wasserman is usually positive and it rapidly responds to anti-luetic therapy. It should be remembered, however, that a tumor of the testis may occur in one suffering from syphilis.

4. Epididymitis. The epididymis alone is usually involved and can be palpated separately from the testis. The condition is usually acute, the scrotal contents are very tender, and as a rule there is a febrile reaction and an elevation of the white blood count. Tuberculous epididymitis which is usually chronic does not invade the testis until late, at which time there are likely to be purulent draining scrotal sinuses.

5. Scrotal hernia. This may be recognized by the history and the usual physical signs for diagnosing inguinal hernia.

6. Mumps. This is an acute orchitis and should be easily excluded.

Roentgen investigation for evidence of metastases is not to be overlooked. This particularly includes x-ray of the chest and according to Fetter[3] an intravenous pyelogram should be done. He states that this will often reveal evidence of retro-peritoneal metastases by displacement of either kidney or ureter, or evidence of obstruction along the course of the ureter.

The finding of gonadotropic hormone (Prolan-A) in the urine of patients with testicular tumor has been of much help in determining the type of tumor, the extent of the disease and the effect of treatment. The test is not infallable as other conditions, such as gynecomastia, cause large quantities of the hormone to appear in the urine. Furthermore, the less malignant testicular tumors, such as the adult teratoma, produce very little or no hormone. At any rate, the test, when done correctly may be of considerable diagnostic and prognostic value.

When the diagnosis cannot be otherwise established, one should not withhold careful orchidectomy.

TREATMENT

It is obvious that a new growth presenting

such difficulties in proper pathological classification as do testicular tumors, would also present divergent views as to proper treatment. However, in the past several years, much constructive work has been done by both the pathologist and the surgeon so that the controversy is becoming more settled and better results are being obtained from treatment. The prognosis of this disease has been radically altered since the advent of radiation therapy[4]. Statistics show that formerly approxmately 85% of these patients died despite the best surgical means available. Dean[4] has reported that of the patient who were seen at New York Memorial Hospital in an operable condition 85% have been free of signs or symptoms of the disease for from five to thirteen years, following radiation. Teratoma testis, or the highly malignant embryonal tumors respond best to radiation. The following three types of treatment are generally considered most efficient depending upon the presence or absence of metastases:

1. Pre-operative radiation followed by orchidectomy in four to six weeks and subsequent post-operative radiation.

2. Initial orchidectomy followed by post-operative radiation.

3. Radiation alone.

Radiation alone is reserved for those where a correct diagnosis had been made and metastases have been demonstrated. This type of therapy is obviously only pallative but the favorable response and elongation of life which occurs in some of these individuals with radiosensitive tumors is occasionally quite striking.

If demonstrable metastases are not present, one may choose ether pre-operative radiation, orchidectomy and post-operative radiation; or orchidectomy followed by adequate radiation. The principal arguments against preliminary radiation are that repeated manipulations of the testis during the treatment predispose to metastasis; sterility is frequently produced in the opposite testis, and when the tumor is finally removed its cellular composition has been so altered that it is even more difficult to make a correct pathological diagnosis.

The procedure of careful orchidectomy followed by adequate radiation probably has the greatest number of adherents. Certainly it would seem that if no metastases were present that this would be the treatment of choice. In performing orchidectomy for tumor under any condition, however, great care should be taken not to manipulate, or squeeze the testis which predisposes to cell migration. The operation is best done by making an incision over the lower portion of the inguinal canal and carefully ligating the entire cord. The incision is then carried down into the scrotum and the testis is removed. The tunica albuginea should never be punctured as cell transplants and local recurrence is very apt to occur.

As regards the technique and dosage of radiation to be used, in a given case, it is advised that the clinician, the pathologist, and radiologist should consult freely in order to secure the best results. Dean[4] ha sshown that when giving radiation therapy, better results may be obtained and reactions will be considerably less when the patient is in good general condition. Particularly should anemia be treated by repeated transfusions of whole blood.

Hinman has developed a masterful surgical procedure directed towards removing the retroperitoneal lymphatic chain on the affected side. He advises it for the adult type of teratoma which is relatively radio-resistant. The principal criticism of this procedure is that it is accompanied by a high mortality rate, the disease may have spread beyond the abdominal lymphatics, and it has been shown that the epigastric lymphatics anastamose freely so that the glands of the opposite side are likely to be involved. This procedure has few proponents today.

Any patient who has had a tumor of the testis should be thoroughly impressed with the necessity of continued observation consisting of regular physical, roentgenographic and hormone checkup for metastases.

CONCLUSION

1. An attempt has been made to present a brief, practical discussion of tumors of the testis.

2. The necessity for early diagnosis and treatment is stressed.

3. Adequate radiation therapy is of great importance in the treatment of these malignancies.

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Hamilton, Ohio

VARIOUS types of tourniquets are in use. Some of them are simple, while others are complicated, and run from the non-expensive to the expensive.

The tourniquet that is to be described herein has been used in venipuncture on hundreds of punctures, where blood is taken for seriological examinations. In one of the larger industries, this is a part of the medical examination upon being employed. This tourniquet is rapidly applied and time saving where a large number of men are being examined, and it is also instantaneously released.

The tourniquet is an ordinary piece of rubber tubing. The one that is being used is 44 inches in length, ½ inch in diameter, with a ¼ inch bore and very resilient. The tubing is folded upon itself and passed around the upper arm —right or left. The upper, or loose ends, are passed within the loop where the tubing is folded upon itself. The two arms, or upper portions of the tubing are drawn up tightly against the loop and then pulled backward and downward on the loop and held in this position (Fig. 1— A and B). The arms of the tubing which encircle the upper arm should always be as near side by side (parallel) as possible. This gives a double constricting force and causes the veins in the forearm to stand out in bold relief, due to their distension, making them easy for puncture.

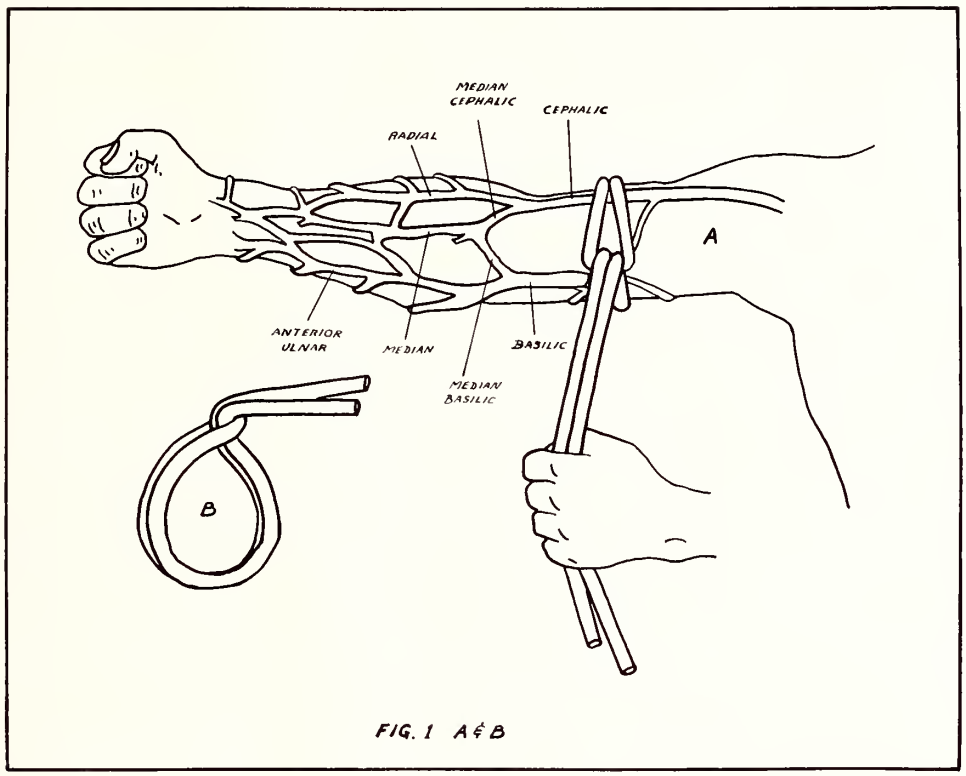

FIG. 1 A & B

The tourniquet is held in place either by an assistant or by the one who is being punctured.

The one assisting, that is, the one holding the tourniquet, when told to release or remove his grasp, after sufficient blood has been drawn into the syringe and before the needle is withdrawn from the vein, the tourniquet releases itself spontaneously; it snaps off due to its resiliency.

When you do not have an assistant, the one making the puncture applies the tourniquet and the one being punctured holds the tourniquet in place. It has previously been explained what you want done. In the event that the one being punctured freezes to the tourniquet after being told to release it, you can knock his grasp from the tourniquet with your free hand, or if syn-

cope takes place during the puncture the grasp will relax and here again the tourniquet snaps off automatically.

It is to be understood that the field where the puncture is made has been prepared and the one making the puncture has carried out the proper technique.

207 Ross Ave.

Some Considerations of Water Balance in Health and Disease

CHAS. N. PLOUSSARD, M. D.
Phoenix, Arizona

THIS is a subject which we take more or less for granted, realizing its importance but doing very little about it other than ordering glucose and saline in a haphazard way to be administered to our patients with no attention to the necessary intake and output.

In reviewing the literature of this subject a few names stand out, such as Hugh Cabot, F. A. Collar, and W. G. Maddock, and there are many others who have contributed valuable material to this subject.

Modern medicine has given us ways and means of supplying the sick patient with water and food by channels other than the gastro-intestinal tract. In health the adjustment between the intake and output of fluids is such that a fairly constant proportion is maintained in the body. This is approximately 70% of the total body weight. Water is not only supplied by fluid drunk but also by solid food consumed, over half of which is water.

TABLE 1—Components of Water Exchange

Available Water	Excreted Water
1. Fluids Drunk	1. Water of urine
2. Food: diet or body substance	2. Water of Stool
A. Water content	3 Water vapor
B. Water of oxidation	

Water from food comes from two sources: (1) its water content. (2) water formed by oxidation of the protein fats and carbohydrates. From these two sources approximately 1000 to 1500 cc. of water leaves the body chiefly by two physiological functions: (1) the excretion of waste materials by the kidneys. (2) the dissipation of body heat. A small amount, however, leaves the body through the stool. There are daily from 7 to 10 liters of fluid—saliva, gastric juice, pancreatic juice, succus entericus and bile poured into the upper gastric intestional tract, with only the loss of approximately 150 cc. in the stool. This demonstrates body economy.

The loss of water through temperature control is a continuous process. It is shown that an ordinary person without visual evidence of sweating will lose in comfortable surroundings from 1000 to 1500 cc. of water daily. When profuse diaphoresis occurs, large amounts of water are lost in this way, up to several liters daily.

This vaporizing process, in contrast to water lost through the kidney, is little affected by the water available, but the body takes what it needs. This is demonstrated by the fact that in hot, sultry weather, enormous amounts of water is taken into the body, sweating is profuse, the urine remains concentrated and scanty.

If skin vaporizing is not necessary the urinary output increases. If vaporization is necessary to keep internal body temperature within normal limits with use of body fluids, you can see that without these fluids dehydration and death may ensue. In other words, water for vaporization takes priority rights. However, the normal amount of solids with a minimal amount of water, thus concentrating the urine.

In health, with the usual eating and drinking, the balance between the intake and output is largely maintained by the kidneys. A good urine output indicates a sufficient supply of water and a small amount of high specific gravity urine indicates insufficient available water.

How important in surgery then is a thorough understanding of water balance when the patient is unable to take food and drink by mouth, particularly when the kind of solutions and the amounts introduced into the body with their unmeasured loss is unknown.

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We all know that attending major surgical procedures, a certain amount of dehydration occurs in the majority of patients. These loss-

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es may be considered under the following headings:

I. DEHYDRATION PRODUCED BY OPERATIONS: We know that the majority of patients lose body fluids when undergoing major operations. A group of eighteen surgical patients showed a total loss averaging about one liter by blood, vomitus, urine and vaporization.

Studies recently by Pilcher and Sheard of the Mayo Clinic, of a series of 55 transurethral prostatic resections showed a blood loss of more than 600 cc. in 33% of the cases and an average of 479 cc. for the entire group. With an improved technique, a second series of 55 cases showed an average blood loss of 291 cc.

On one patient radical breast surgery showed a loss of 1272 cc. The patient perspired profusely in the operating room and after the end of her four hour post-operative period, she had a fluid loss of 2500 cc. How necessary then it becomes to administer fluid to patients during and following time consuming operations? Loss of water by sweating can be reduced. It is a common error following surgery for the patient to be wrapped in blankets causing profuse diaphoresis and the unnecessary loss of life giving body fluids.

TABLE 3—The Minimum Amount of Water Required to Excrete 35 gm. Waste Materials

Status of Kidney	Maximum Concentrating ability: Specific Gravity	Water Needed c.c.
Normal	1.032-1.029	473
Diseased	1.028-1.025	595
	1.024-1.020	605
	1.019-1.015	850
	1.014-1.010	1,439

II. DAILY WATER LOSSES OF SURGICAL PATIENTS: Some patients can not take water by mouth following surgery, and some are not permitted to do so, so it becomes necessary to supply water to the body by other means. To understand the quantitaive needs, a careful study is necessary. The data shows that under usual comfortable conditions without sweating, the average adult patient during convalescence, vaporized from 1000 to 1500 cc. of water daily.

With fever and complications producing toxemia, the water by vaporization sometimes reaches more than two liters a day. This amount does not include loss by vomiting, stool or urine. For seriously ill, surgical patients with sepsis, the minimum daily output of urine should be 1500 cc. with average specific gravity. The kidneys in excreting this amount of urine will remove from the body about 35 gm. of waste materials daily. This of course varies with the specific gravity of the urine and in cases of decreased kidney, more water following surgery is necessary.

More fluids are lost by vomiting, bleeding, drainage from biliary and intestinal fistulae, diarrhea and sometimes serum loss from inflamed surfaces than was ever thought possible. The nurses in charting should always measure as soon as possible, the amount of fluid losses from these sources. When administering water parenterally to a patient there should be some thought in deciding the amount of fluids to give. (see table 4)

TABLE 4—Daily Water Requirements

	Non-Septic Patient	Septic Patient
1. Water for vaporization	1,500	2,000
2. Water for urine	1,000	1,500
3. Abnormal losses, vomitus, et cetera		
Total	2,500	3,500

In going over this table the losses are abnormally high and the fluid intake in those cases should be double.

The surgeon who is quick to reconize the sign of dehydration in patients seen for the first time may wholly overlook that matter of fluids in one he has seen every day and his patient loses enormous amounts of water before his very eyes.

The diminished amount of urine is too often attributed to the reflex and toxic suppression of the kidney where as the real cause is insufficient water, and in cases of low urinary output, no other condition should be considered until the factor of dehydration is eliminated.

III. WATER BALANCE IN DEHYDRATION. Other than the two previously mentioned conditions the dehydrated patient brings a problem in water balance in addition to the foregoing individual type of patient. There is insufficient water to maintain body fluids at their normal level, therefore an additional amount is necessary to restore what has previously been lost. We have no quantitative test for dehydration, but certain signs are present such as a dry hot skin, sunken eyes, a dry tongue, a slight fever and a diminished output of concentrated urine which is insufficient to excrete the necessary waste products and an increasing NPN determination accompanies dehydration.

It is estimated that approximately 6% of the body weight that was originally attributed to body fluids has been lost. This 6% figure can be

used in determining the amount of fluids necessary in the dehydrated patient (Table 5).

TABLE 5—Fluid Requirements of a Dehydrated Patient Weighing 60 kg.

	c.c.
1. Water for vaporization	2,000
2. Water for urine	1,500
3. Abnormal losses, if any, during the 24 hours	?
4. Fluid for hydration, 6% of 60 kg.	3,600
	7,100

Referring to the table this 7,000 cc. fluid seems quite a lot, but many times it is often necessary to give much larger amounts of water before the proper output is re-established.

Let me call your attention to the point that in Table 5 water is listed for vaporization and for urine, but fluid is listed for hydration. As you know water alone will not replace the fluid lost by vomiting or diarrhea since considerable amount of salt has been lost and must be replaced if water is to be retained in the tissue. Often in cases of prostatism, dehydration results because the patient stops drinking because of the difficulty in voiding. As there is usually no vomiting or diarrhea water is the chief need. To bring out some of the important points in the study of water balance in the dehydrated patient a case report from the series of Walter Maddock is given:

B. L., a woman, aged 48 years, entered the surgical ward on March 29, 1935 complaining of abdominal pain and distention, and obstipation of 48 hrs. duration. Vomiting had occurred twice during that time. No food or fluid had been taken in the 30 hours previous to admission. The past history revealed a lower abdominal operation 12 years previously for intestinal obstruction. On May 26, 1934 a left pyelolithotomy and nephrostomy had been done for stones and on June 20, 1934 a right nephrectomy was performed for a calculous pyonephrosis.

On physical examination the patient appeared to be in moderate pain and was definitely dehydrated. Her lips were dry and her tongue showed only a slight amount of moisture at the edges. The abdomen was moderately distended, was tympanitic and tender in the lower half. On admission the leukocyte count was 19,000 per cubic millimeter of blood, and the hemoglobin was 10 4per cent (Sahli). No urine could be obtained on catheterization. The NPN was 61.2 mg. per 100 cc. of blood. The blood chlorides were 558 mg. per 100 cc. (plasma). A flat x-ray of the abdomen showed a distention of what appeared to be isolated loops of small bowel.

In view of the damaged remaining kidney, the dehydration, the oliguria the high value for the blood NPN, and the opinion that the obstruction was due to adhesions and was not strangulated, a decision was made to treat the obstruction conservatively for the time being. The patient was made comfortable with opiates. A Wangensteen duodenal suction apparatus was started and heat was applied to the abdomen. Intravenous fluids were given by W. G. M., who stayed in the room with the patient during the day. An assistant stayed in the room with the patient during the 12-hour night period. In this way the abdominal condition was closely followed and the water exchange accurately determined.

TABLE 6—Water Balance During Hydration of Patient B. L.

	3-29-35	3-30-35	3-31-35	4-1-35
Weight in grams of:	12 hrs.			
Intravenous fluid	3,977	3,912	6,565	4,915
Retained enema fluid	0	0	718	0
Water of oxidation	150	350	300	275
Preformed water	100	220	200	200
Urine	31	406	4,884	4,598
Sp. gr. of urine	1.020	1.013	1.011	1.006
Blood NPN, mg. 100c.c.	63.8	73.5	48.3	37.9
Stool	0	0	7	0
Blood	0	10	12	6
Sputum	0	0	30	0
Gastric drainage	161	306	120	0
Insensible loss	595	2,470	1,665	1,586
Max. mouth temp., of.	100.5	102.3	98.4	100.0
Total available water	4,227	4,482	7,783	5,390
Total water output	787	3,192	6,718	6,190
Water balance	3,440	1,290	1,065	—800

In this table it can be seen that on March 28, the intravenous administration of 3,977 c.c. of 5% dextrose in distilled water resulted in only a 31 c.c. output of urine. Where did the rest of the fluids go? The water balance figure (also the weight increase) showed that 3,440 c.c. were retained by the body to take care of the dehydration. The insensible loss was 595 c.c. so there was nothing left of the 3,977 c.c. for the kidney. On March 30, a 3,912 c.c. intravenous administration of 5% dextrose in water was largely used up by a water retention of 1,290 c.c. and an insensible loss of 2,470 c.c. (temperature 102.3°F., considerable sweating). The kidneys managed to put out 406 c.c. of urine, but only at a gravity of 1.013. From Table 3 the insufficiency of this urine output is apparent and as a result the blood NPN had increased to 73.5 mg. per cent. The circumstances of this patient—intestinal obstruction with only one kidney present and that one damaged by stones and infection—were ideal for the so-called toxic suppression of kidney function. Such was not the case. The figures for the insensible loss and water retained to overcome the dehydration showed how all the

fluid of March 29 and 30 had been used. More water was needed.

On March 31, the intravenous administration was stepped up to 6,565 c.c. Water retained and insensible loss were only 1,065 and 1,665 c.c. respectively. The result was a urine output close to 5,000 c.c. and the NPN came down to 48.3 mg. per cent. With a good urine volume on April 1 the NPN was normal. Water is the greatest diuretic, but, as Hugh Cabot has pointed out, this fact is frequently overlooked when the water is administered subcutaneously or intravenously.

IV. PARENTERAL FLUIDS. Up to this point amounts of fluids have been stressed. Now we will consider the kinds of fluids the patient needs. When water is given parenterally some dextrose should be given. It is fuel for energy and prevents or relieves ketosis and protects the liver. Each individual case must be considered. Sodium chloride is contraindicted in edematous patients, but if given in too large amounts may even cause an edema in other patients. In many cases, given fluids following extensive surgery or sepsis or both, a retention of water and post-operative edema resulted from the administration of 5% dextrose in saline and retention of water did not occur when the dextrose was given in water. If post-operative vomiting is present or if the Wangensteen suction is used normal saline is indicted. Certainly a controlled amount of normal saline solution will be beneficial in most of the cases. The normal intake of sodium chloride is about 5 or 6 grams a day, then with approximately 15 to 25 grams of salt which enters the body in 2,000-3,000 c.c. of normal saline. some edema can be expeeted and certainly trouble will result when indiscriminately used over too long a period of time. Post-operative pulmonary edema is probably more often caused by this than we think. Post-operative retention of water in the tissues as also very undesirable in stomach and intestinal surgery because the edema definitely decreases the size of the stoma and rapid healing is interferred with.

Gamble has pointed out that salt solution tends to be retained because it contains the substance required for rebuilding body fluid volume, it follows then that salt solution is most desirable in treating most cases of dehydration, bearing in mind, however, that most of the fluids following surgery are given with the purpose of adding water to the body and not treating dehydration. Unless there is considerable renal damage the kidney can be relied upon to excrete the excess of sodium or chloride ions. In many instances in general surgical patients studied by Maddock, 20% were found to be more or less dehydrated and were given dextrose in normal saline because of dehydration; the other 80% were given dextrose in distilled water purely with the purpose of adding water to the body.

When you consider that 25.5 grams of sodium chloride is given in 3,000 c.c. of normal saline or Ringer's solution one can readily see how excesses of salt are frequently given parenterally. On many surgical services in our well equipped hospitals only two solutions are usually available for parenteral administration, 5% dextrose in distilled water and Ringer's solution. One will be repaid if the needs of each individual patient is considered when ordering intravenous or subcutaneous fluids.

AMERICA AT WAR

CIVILIAN DEFENSE— EMERGENCY BASE HOSPITALS

The Medical Division of the U. S. Office of Civilian Defense, through its Regional Medical Officers and State Chiefs of Emergency Medical Service, has now made emergency provision for the establishment of a chain of Emergency Base Hospitals in the interior of all the coastal states. They will be activated only in the event of an enemy attack upon our coast which necessitates the evacuation of coastal hospitals. Each base hospital will be related to the casualty receiving hospital which has been evacuated and it is expected that the staff will be recruited largely from the parent institution.

In order to meet a sudden and unexpected crisis without delay, arrangements have been completed with state authorities for the prompt taking over of appropriate institutions in the interior of the state for this purpose and with local military establishments for the transportation of casualties and other hospitalized persons along appropriate lines of evacuation.

More than 150 hospitals in the coastal cities are in the process of organizing small affiliated units of physicians and surgeons, which will be prepared to staff the Emergency Base Hospitals if they should be needed. These units are composed of the older members of the staff and those with physical disabilities which render them ineligible for military service, and of women physicians. In order that a balanced professional team may be immediately available the doctors comprising units are being commissioned in the inactive Reserve of the U .S. Public Health Service so that, if called to duty, they may receive the rank, pay and allowances equivalent to that of an officer in the armed forces.

Dr. George Baehr, Chief Medical Officer of the U. S. Office of Civilian Defense, states that the members of these affiliated hospital units will continue to remain on an inactive status for the duration of the war, unless a serious enemy attack occurs in their region which necessitates the transfer of casualties to protected sites in the interior. Their commissions may be terminated upon their request six months after the end of the war, or sooner if approved by the Surgeon General. Such approval will be given in the event such officer desires active duty in the Army or Navy.

TABLE OF ORGANIZATION FOR USPHS-OCD AFFILIATED UNITS

Number Required	Position in Unit	USPHS Title	Equivalent Army Rank
1	Chief of Medical Services	Senior Surgeon*	Lieut. Col.
1	Asst Chief of Medical Services	Surgeon	Major
2	General Internists	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Chief of Surgical Services	Senior Surgeon*	Lieut. Col.
1	Asst. Chief of Surgical Services	Surgeon	Major
2	General Surgeons**	Surgeon	Major
2	General Surgeons**	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Orthopedic Surgeon	Surgeon	Major
1	Asst. Orthopedic Surgeon	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Dental Surgeon	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Pathologist	Passed Asst. Surgeon or Surgeon	Captain or Major
1	Radiologist	Passed Asst. Surgeon or Surgeon	Captain or Major
15			

*One of the two Senior Surgeons will be the Unit Director.

**In place of one or more of the general surgeons, a urological surgeon, thoracic surgeon, neurosurgeon, or plastic surgeon may be included.

DENTISTS IN TRAINING TO AID PHYSICIANS

Sixteen dentists in Flint, Michigan, are taking special training in Flint hospitals at the invitation of the Genesee County Medical Society to enable them to assist physicians by performing certain medical procedures, and thus to relieve the growing shortage of physicians created by the demands of military service.

The training will qualify the dentists in the following procedures: Obtaining blood for examinations, intravenous feeding, intramuscular injections, intravenous injections and obtaining blood from donors for blood banks.

Several of the number are already qualified in some of these fields and are assisting in clinics and with Selective Service examining board.

Colorado dentists are engaged in a similar program under the auspices of the Colorado State Dental Association and the Committee on Emergency Medical Service of the State Defense Council.

The plan was initiated by the presidents of the State Dental Association and of the Denver Dental Association, in cooperation with the board of trustees of the Colorado State Medical Society. Facilities of the University of Colorado School of Medicine and the Colorado General Hospital have been made available for the instruction.

A class of seventy dentists has finished a course of lectures on anesthesia, and small groups are now assigned to the hospital for practical training. It is planned that the dentists will return to the hospital at intervals for review after their training is completed. Preliminary lectures on shock and treatment of open wounds have also been presented.

Classes are being organized in maxillofacial surgery, oral surgery, serology, taking of blood for transfusion, and in the treatment of shock, hemorrhage and open wounds.

Dr. Ralph Christy, president of the state dental association, in a report to the Dental Preparedness Committee of the American Dental Association, emphasized the desire of dentists to assist the medical profession in an emergency, the willingness of physicians to give the necessary instruction and the importance of practical training in hospitals in addition to didactic lectures.

The Medical Division of the Office of Civilian Defense in April issued a statement recommending that dentists qualify themselves in First Aid, in order that they may act as instructors and as members of Emergency Medical Field Units in Casualty Stations and First

Aid Posts in the event of air raids; in the administration of anesthesia, and in the care of injuries of the face and jaws.

CHIEF OF GASOLINE RATIONING APPEALS TO PHYSICIANS OF U. S.

An open letter to all physicians of the United States from the chief of the Gasoline Rationing Branch, Office of Price Administration, concerning the vital role they will play in the rationing of gasoline and tires, is published in the Medicine and War section of *The Journal of the American Medical Association* for October 31. The letter is as follows:

"In the East Coast Gasoline Rationing program, made necessary by the shortage of transportation facilities for petroleum products, the indispensability of your profession was recognized by its inclusion in the categories of persons eligible for preferred mileage, that is, necessary occupational mileage in excess of 470 miles a month. Now the Office of Price Administration has been ordered by Mr. William Jeffers to institute and administer a nationwide mileage rationing program for the express purpose of conserving our rubber-borne transportation. In framing the Regulations for the new program, your profession was one of the first to be provided for.

"If we are to carry out our double task of preventing a collapse of our military and civilian transportation, we must have the complete cooperation of those groups of persons whose driving is deemed essential to the war effort. Our immediate aim is to attain the 5,000 mile national mileage average set by the Baruch Report as the maximum possible in light of the dire rubber shortage. Our experience with the East Coast program tells us that the preferred categories use one half of the gasoline consumed, though they constitute less than one fourth of the total number of automobile operators. Clearly, then, the great savings of rubber on a nationwide scale must be made in the preferred categories.

"Under the Regulations, governing the mileage rationing program, physicians are eligible for preferred mileage if their essential occupational needs exceed 470 miles a month and if the mileage is needed for regularly rendering necessary professional services. Mileage traveled daily or periodically between home or lodging and a fixed place of work is not considered preferred. Physicians who conduct their practices in offices, as many specialists do, are not eligible for preferred mileage.

"Without question or hesitation, doctors have been and will be granted all the gasoline needed to carry out their professional work. We hope that they will regard their concrete symbol of their indispensability, the C book, as a moral obligation and not as a personal privilege. From another point of view, the C book is part of a doctor's equipment; it should not be used for anything but the work of humanity.

"When nationwide gasoline rationing begins, there are certain concrete things a doctor can do to live up to the high ethical standards set for him by his own profession:

"1. At the time of first issuance of rations, he can so carefully compute his necessary mileage as to make a B book adequate for his purposes though he might easily make out a case for a C book, which might be granted to him without question by his local War Price and Rationing Board eager to provide for physicians.

"2. In the computation of his mileage, he can religiously adhere to the provision of the Regulations, which makes 150 miles of his basic ration available for occupational purposes. Moreover, he can help mightily in establishing the principles that only 90 miles of the basic ration are to be used for home necessary use and that there is no provision whatever in any ration for 'pleasure driving.'

"3. Conversely, if he should be granted a C book, he can return to the local board, at the end of the three months period, all unused coupons accruing to him as a result of a quite natural overestimation of needs or of overgenerous 'tailoring' by his board, instead of using such coupons for nonessential purposes. The moral effect of such an act on his fellow citizens will be incalculable.

"4. He can set an example by scrupulously observing the 35 mile speed limit, except in cases of emergency, in spite of the fact that doctors could easily 'get away with it.'

"5. Should he be assigned to a hospital, clinic or institution after a ration card for calling on his private practice has been issued, he can use public means of transportation at the price of personal inconvenience.

"6. He can refrain from any kind of driving

whatever which might appear to be nonessential in the eyes of the public.

"Doctors are the leaders and molders of public opinion in their communities. If the average man has any reason to believe that the professional men whom he regards with great respect are indifferent or hostile to the mileage rationing program, it will be difficult, if not impossible, to make it effective. Conversely, if doctors as a group observe the letter and spirit of the Regulations, they will be a powerful force in making this absolutely mandatory war measure serve its purpose. We know that we can rely on the support of your profession, which has demonstrated its patriotism, ability and unselfishness at every opportunity.

JOHN R. RICHARDS,
"Chief Gasoline Rationing Branch, Office of Price Administration."

SOCIETY ACTIVITIES

WARNER W. WATKINS, M. D.
Secretary
Arizona State Medical Association

L. B. COHENOUR, M. D.
Secretary
New Mexico Medical Society

LOUIS BRECK, M. D.
Secretary
Southwestern Medical Association

CHAS. F. RENNICK, M. D.
Secretary
El Paso County (Texas) Medical Society

NEW MEXICO MEDICAL SOCIETY
(L. B. Cohenour, Associate Editor)

The Councilors of the New Mexico Medical Society have decided that the State Meeting will be discontinued for the duration, due to the difficulty in traveling and the probable difficulty in securing speakers, according to L. B. Cohenour, M. D., Secretary of the Society.

EL PASO COUNTY (TEXAS) MEDICAL SOCIETY
(W. John Pangman, Associate Editor)

A meeting of the City-County Hospital Staff was held Wednesday, October 21, 1942, at 6:30 p. m., at City-County Hospital. The program: Case of spinal injury.

Dr. A. P. Black was awarded the Sir Henry Welcome prize on November 6, 1942, at the annual session of the Association of Military Surgeons of the United States, meeting in San Antonio, November 5-6-7.

The prize, won in competition with a large number of other contestants, consists of a cash award of $500, the Sir Henry Welcome gold medal and publication of the prize winning essay in the Military Surgeon, official journal of the association.

The title of Dr. Black's essay was "Measures of Preventive Medicine Recommended by the Federal Medical Services to Insure the Maximum Improvement of the Selectee of 1961 Over Him of 1941."

Dr. W. John Pangman was recently notified that he has passed the examinations of the American Board of Plastic Surgery and is to be certified by that body.

Dr. M. P. Spearman was elected to Fellowship in the American Academy of Ophthalmology and Otolaryngology at its session in Chicago in October.

The staff of Wm. Beaumont General Hospital entertained the El Paso County Society on Tuesday, November 3, 1942. At 7:00 p. m. dinner was served in patients' mess hall. The program follows:

1. Introduction, Colonel George M. Edwards.
2. Presentation of battle casualties, Major John G. Manning and Major William H. Frackelton.
3. Demonstration of stethocardiette and orthodiascope with general discussion of cardiac surveys, Major George P. Denny and others.

ARIZONA STATE MEDICAL ASSOCIATION

(J. D. Hamer, Associate Editor)

The staff of Good Samaritan Hospital, Phoenix, met October 26, 1942. The program:

1. Opening remarks by Chief of Staff H. G. Williams, M. D.

2. Minutes of September meeting, Ben P. Frissell, M. D.

3. Old and new business.

Scientific program:

1. Hospital statistics, J. N. Ross, M. D.

2. Empyema of gallbladder, W. G. Furth, M. D. Discussion, general.

3. Case of eclampsia, F. C. Jordan, M. D. Discussion, L. C. McKay, M. D.

A meeting of the staff of St. Joseph's hospital, Phoenix, was held on October 12, 1942, at 8:00 p. m.

The clinical program, under the chairmanship of Dr. Robt. Stevens:

1. Statistical report for the month of September, Dr. Lucy Vernetti.

2. Case No. 62,005, functional death, summary, Dr. John Schutter. Discussed by Dr. Louis Baldwin.

3. Case survey of coronary occlusion, for the year 1941, Dr. George Barfoot. Discussion opened by Dr. Ben Pat Frissel.

A regular staff meeting of St. Joseph's Hospital, Phoenix, was held on September 14, 1942, at 8:00 p. m.

A review of the deaths for the month of August was presented by Dr. John M. Schutter.

The clinical program was as follows:

I. The Use of Sodium Pentothal in Thoracic Surgery.

Presented jointly by Dr. Howell Randolph and Leslie R. Kober.

II. The Case of Fracture of the Skull.

Presented by Dr. Lucy Vernetti.

Discussed by Dr. E. Payne Palmer, Sr.

III. Summary of Skull Fracture Cases in the Hospital Since January 1.

Presented by Dr. Norman D. Hall.

MISCELLANY

ELECTRONIC "EYE" TO MEASURE U. S. SUNFALL

Sensitive new electronic "eyes" developed by Westinghouse engineers to see and record invisible ultraviolet rays in sunshine will soon begin their first daily measurements of "sunfall" in the United States to study its effect on the wartime health of the nation.

The new sun measuring instruments eventually will operate in 20 of the world's first solar observation posts to be set up for a nationwide ultraviolet study by the United States Weather Bureau. Located in Weather Bureau stations, the observation posts will be scattered over a 1,000 mile stretch of land running from Texas northward through the Mississippi Valley to the colder regions of the midwest.

First sun metering will get under way soon in New York City and in Boston and Cambridge, Mass., to record the amount of ultraviolet which penetrates through the haze of big metropolitan centers. These figures may eventually make it possible to forecast for several days in advance the intensity of sunfall over a city, Weather Bureau officials believe.

Med. Times.

DEMAGOGY IN MEDICINE

Recently it was in the news that a member of the National House of Representatives hailing from New York had introduced a bill providing for the formation of a number of "Medical West Points". That is, there would be built in various portions of the country by the Federal Government great medical schools, with the funds illimitable and never ending that pour out of Washington, making them the most supercolossal exponents of the healing art that have yet been seen.

We believe that one point that the statesman from the Bronx (or some nearby district) stressed particularly was the democratic nature which these places would possess, contrary to the already established medical schools. This undemocratic spirit and another charge frequently brought against us would seem to be self contradictory:

Charge one—We are snobbish and cliquey. We don't want the poor boy or members of vari-

ons racial groups in our guild. But we all know many a good doctor who had to go threadbare until he was established and earning a modest income, and as to racial groups—study the recent membership lists of our societies and pick out the discriminated against groups if you can.

Charge two—We are ridiculous in our unity. Those seeking to make legal troubles for doctors have great difficulty in getting other members of the profession to turn against their fellow practitioners. The facts are of course that we are a cross section of the community but in our ranks there is developed in the best sense of the word a class consciousness and what we are sure is a rather remarkable fellow esteem and helpfulness.—The writer's own class in a school frequently accused as the most snobbish of all ranged from millionaires through men of numerous racial strains, many working their way. And the friendly relations among these, all absorbed in their common interest in medicine, was delightful.

Undoubtedly our statesman intends to ensure medical democracy by the choosing of the pupils attending these governmental schools. We have understood that admission to West Point was largely through appointment by congressmen. Perhaps this has worked well with our fighting men. Policies and warfare are both rough, tough games. But a reading of history will convince any one that our commanders in chief have always been handicapped in their campaigns by the necessities of political considerations. And does any one believe that our congressmen as a group do not overemphasize policies? Compare this with the elaborate methods used by our great medical schools to learn the records and aptitudes of candidates and their constant competition to get the brilliant men who will shed lustre on their institutions.

There has been a feeling among some able educators that the methods at West Point left something to be desired. Tradition has played too strong a part. Apparently it was this traditional attitude that forced our medical officers in the last war to wear a tight Prussionized coat without room in the pockets to carry a stethoscope so patients frequently were not auscultated when they should have been. Armies of other countries had big roomy patch pockets. Even in such a remote manner as this war medicine adversely affected by the misapplied martial spirit.

Passing fads and fancies play a small part in real medicine and we are invariably accused in the public press of narrow-mindedness and ultra-conservatism when we do not adopt each new panacea. The populace forget the avidity with which we have seized upon such things as insulin, liver therapy and the sulfa drugs, when these really worthy agents have appeared.

Osteopathy and chiropractic maintain strong lobbies, have vociferous proponents among our legislators and if they have not appointments in our armed forces they have at least obtained recognition in Defense organizations. When our medical schools are controlled in the National capitol presumably such strongly organized bodies will be able to introduce courses in these subjects despite the firm belief of scientific men in their fallacy.

Such things will be found to occur if government medical schools are established. As Professor William B. Munro says, "For, whatever may be hoped to the contrary, federal aid will invariably lead to federal guidance discipline, restraint and control. Those who hold the purse will wield the power." When a Huey Long lavishes governmental funds on a school he will attempt to debauch it.—R. I. Med. J.

GUILLOTIN, GATLING, AND ROCKWELL

The fact that the names of three physicians are historically identified with death-dealing devices might easily give rise to a wrong impression. They were all humane men and fully entitled to membership in a profession whose traditional object is the prolonging of life and the mitigation of suffering. Indeed it is the last named attribute which stimulated their interest in the devices mentioned.

Joseph Ignace Guillotin was a highly respected practioner of medicine at the time of the French Revolution. He deplored the clumsiness and inefficiency of the gibbet and was instrumental in having the decapitating appliance which was later given his name substituted. He never had anything to do with its invention or improvement. Its original use is ascribed to the Persians; after the 13th century it was used in Italy, where members of the nobility who were condemned to death had the privilege of choosing it as a method of execution if they preferred it to more plebeian technic. The Germans used it in the Middle Ages, we are told, and in Scot-

land a similar device was employed with the euphemistic title of "maiden" in the 18th century. So Dr. Guillotin merely was the champion of what he believed to be the most merciful way of inflicting the death penalty, by an old established and well tried method.

Richard Jordan Gatling, M. D., received his degree from the Ohio Medical College in 1850 but never practiced. He was a mechanical genius and turned his talents to useful inventions among which were a steam plow and a hemp breaking machine. Shocked by the inconclusiveness of the warfare of his day he conceived the idea of producing a weapon so deadly that it would speedily bring organized combat to an end. Thus he invented the revolving, rapid fire gun which bore his name; the crude forerunner of the modern machine gun, deadliest of all weapons. Gatling died in 1903 at the age of 85, happy in the thought that he had brought lasting benefit to humanity.

A. D. Rockwell, M. D., was a pioneer in electrotherapeutics, to the literature of which he made many important contributions. When the State of New York officially adoped electrocution for capital punishment it was Rockwell who was employed to apply his knowledge and ability to make it quickly and painlessly effective. The "electric chair" of today is practically as he perfected it. As in the other instances he was actuated by only the best of humane motives.—*Journal Lancet.*

AN ELOQUENT SERMON

The number of physicians on extended active duty and the figures on the 1942 quotas, as of September 1, are now available from the Procurement and Assignment Service. The latter furnish interesting and disturbing data, particularly concerning some of the New England states. The state providing the lowest percentage of its quota of physicians for 1942 is Nevada, which has obtained but 56 per cent. The second lowest is Illinois, in which the figure is 63 per cent. The next two lowest are Connecticut and New York, each having supplied but 64 per cent of their quotas. For Massachusetts, the figure is 67 per cent; for New Hampshire, 79 per cent; for Vermont, 82 per cent; for Rhode Island, 84 per cent; and for Maine, 99 per cent.

For a community spoken of as the "Cradle of Liberty," Massachusetts hardly shows to advantage in this picture when compared with such states as New Mexico with 205 per cent of its total quota; Louisiana, with 196 per cent; Alabama, with 179 per cent; South Carolina, with 160 per cent; Kentucky, with 159 per cent, and North Carolina, with 151 per cent. Twenty-six states in the Union have supplied above 100 per cent of their quotas. When one realizes that Massachusetts stands fifth from the bottom, only four other states, Nevada, Illinois, Connecticut and New York, having lower percentages, then it can be said that these figures preach an eloquent sermon.—*N. E. J. of Med.*

TREATMENT OF WHOOPING COUGH

Belladonna reduces the spasms in pertussis. Children tolerate belladonna well. The initial dose should be from 2½ to 5 minims (0.166 to 0.333 cc.) of the tincture three or four times daily. This dose should be rapidly increased until the patient is taking from 10 to 15 minims (0.65 to 1.0 cc.) in each dose, according to its age.

The following prescription is useful:

R Tr. belladonnae m iij to xx (0.2 to 1.3 cc.)

Tr. camph co.	m v	(0.325 cc.)
Sod. brom.	gr. ij	(0.15 Gm.)
Syrup tolu.	q.s.	
Aq. chlorof ad.	dr. i	(4.0 cc.)

Sig.: One dose.

Progress should be judged by keeping a careful daily record of the number of paroxysms.—*Medical Bulletin.*

MEDICAL WITNESS

And now as concerns the physicians' contact with the courts: namely, the expert witness. The matter of expert testifying in court is not the ordeal pictured by some people who have occupied the witness stand and who are quoted repeatedly in the literature of medico-legal relations. There is a natural dread of the witness chair similar to the fears of a small boy who is about to speak his part and is afraid he will forget an important line. Anxiety as to one's ability to think clearly and express himself likewise is justified in any such situation. It is time-consuming and renumeration is only fair. It is somewhat of a duty but not a task. It should be remembered as one chides the flustered witness, that very few persons in the court room, spectators, jurors, attaches or attorneys could face calmly situations which are daily occurrences

to the physicians. Mark Twain once said "There is no display of human ingenuity, wit and power so fascinating as that made by trained lawyers in an important case. Nowhere is there such an exhibition of subtlety, acumen, address or eloquence". The good trial lawyer is an artist at cross-examination and plans his attack with corresponding cunning. The witness who has been candid and truthful may expect from him straightforward questions but if he has not been truthful, has unintentionally or otherwise given the impression of prejudice or bias, he may expect a barrage that will tend to discredit not only the testimony but the witness himself.

Criticism and prejudice of the expert witness is frequently heard. Honorable John M. Gallagher, Chief Justice of the Supreme Court of Minnesota, believes that one cause for prejudice has arisen against the testimony of the physician as the result of difference of opinions of experts in mental cases. He points out that they occur in important will cases and in criminal cases under the plea of insanity and are traceable to the difference between legal and medical concepts of insanity. He explains that in law, insanity implies inability to recognize wrongfulness of an act and is based on outmoded mental science and psychology. He says that to the physician and psychologist mental derangement may be entirely unconnected with any responsibility. The psychology which expresses itself in criminality seems the very embodiment of irresponsibility to the physician and yet in law the criminal is held responsible. Be that as it may, difference in opinion by physicians is not more frequent than among other experts. To be sure, the difference of opinion and interpretation forms the basis of most questions submitted to litigation.

Another frequent criticism of the physician's testimony is facetiously referred to as consisting of a jargon of technical phraseology which is unintelligible to the judge and jury. I found with some amusement, in a brief review of the literature concerning the expert witness, a short poem referred to again and again wherein a black eye was described as "an integumental contusion with adjacent ecchymosis of orbital tissue."

Medicine possesses its own literature and language and the most natural tendency is for the physician to lapse into technical phraseology particularly when encouraged by the attorney who can at least engage in medical phraseology to a knee depth. Frequently it is forgotten by both witness and attorney that the matter of their discussion is for the benefit of the judge or the jury and a dialogue ensues—a dialogue not too enlightening to a jury who have become casual listeners.

It is my belief that medical testimony too frequently is characterized by an attitude on the part of the medical witness that he is making a record, because of the presence of the court reporter, and he visualizes his answers to counsel's questions being critically read by a jury of physicians. In other words, he feels as though he were writing a book or scientific article for publication. But all responsibility for language and terminology does not rest with the doctor. Unfortunately, the doctor must answer the questions only. Springstun in his book "Doctors and Juries" says that testifying in court is a good deal like playing golf. If the doctor takes a good stance, keeps his eye on the ball, uses a good swing and follows through, he gets along pretty well. The simple dignified swing without exaggeration or added flourishes always gets the best results.

Lawyers complain about and criticise the expert medical witness, no doubt justly, but physicians have complaints also. Physicians as a class object to the hypothetical question as a technical problem to be twisted at will by the interrogating attorney but all to frequently so involved as to be beyond the comprehension, in all or even most of its details, to the witness himself and surely, we believe, to the lay members of the jury. Lawyers recognize the disadvantage of the hypothetical question. Professor Wigmore, quoted to the writer as pre-eminent on matters of evidence, says: "The hypothetical question must go as a requirement. Its abuses have been so obstructive and nauseous that no remedy short of extirpation will suffice, the hypothetical question is mis-used by the clumsy and abused by the clever, has in practice led to intolerable obstruction of the truth."

We have another complaint. The physician resents the legal phraseology found in the petition. He is embarrassed when he reads the petition of his own patient describing common-place bodily injuries with which he deals daily, so dressed up in legal phraseology and so exaggerated in compliance with legal technical detail as to be hardly recognizable. Why not write

Milestones in Medical History

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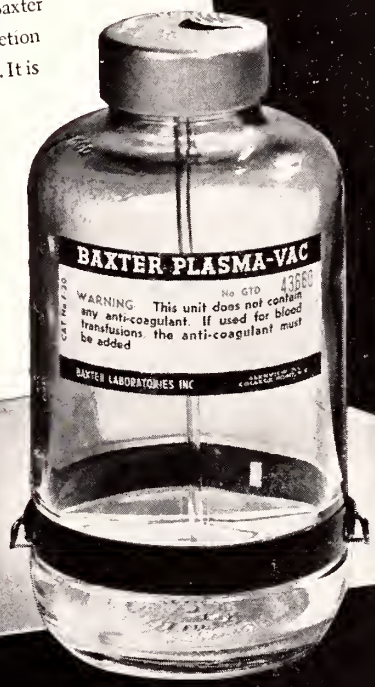
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a petition like an insurance policy, with standard provisions in small type to cover all possible surprises and then a written part that reads more sensibly? Furthermore why do most injuries become complicated by sacroiliac sprain when suit is filed?—*J. Kansas M. Soc.*

PUBLIC HEALTH NURSES NEEDED

The U. S. Civil Service Commission recently issued a call to Public Health Nurses through the pages of this journal. The Commission has now asked that we print a correction regarding a statement made in their press release regarding the omission of high school education as a requirement for Public Health Nurse positions. This statement was made in error by the Commission. In effect the educational requirements for Public Health Nurse cannot be obtained without completion of high school education.

The Public Health Nurse positions pay $2,000 a year. The requirements are: Completion, subsequent to January 1, 1920, of a full course in a recognized school of nursing including 2 years in a general hospital having a daily average of 50 bed patients or more; registration as a graduate nurse; and completion of one year of study in public health nursing at a college giving a course of study approved by the National Organization for Public Health Nursing. One year of public health nursing experience is also necessary.

Other nursing opportunities open in the Federal service include the following: Junior Public Health Nurse, $1,800 a year; Graduate Nurse, $1,800 a year; Junior Graduate Nurse, $1,620; Graduate Nurse for the Panama Canal service, $168.75 a month; Nursing Education Consultant, $2,600 to $5,600 a year.

Except for Panama Canal service there are no age limits for any of these positions. Applications will be accepted at the Commission's Washington office until the needs of the service have been met.

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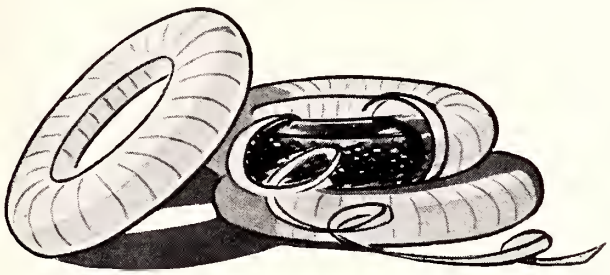

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* *Laryngoscope, Feb. 1935, Vol. XLV, No. 2, 149-154*
Laryngoscope, Jan. 1937, Vol. XLVII, No. 1, 58-60

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BOOK NOTES

L. O. DUTTON, M. D.
(Book Review Editor)
Mills Bldg., El Paso, Texas

CLINICAL ANESTHESIA: By John S. Lundy, B. A., M. D., Head of Section on Anesthesia, Mayo Clinic; Professor of Anesthesia, Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota; Diplomate and Member of the American Board of Anesthesiology, Inc.; Member of the Subcommittee on Anesthesia, National Research Council. 771 pages with 226 illustrations. Philadelphia and London: W. B. Saunders Company, 1942. Price $9.00.

Excellent, well written and just what has been needed for quite some time, timely indeed. The work is quite unique in its clinical depiction. It is most outstanding in its effort to treat with the clinical phase of anesthesia and its agents and at the same time does not lose sight of the importance of details of technique in the administration of the now many elements and instruments employed in this rapidly progressing art. Doctor Lundy treats each subject almost in colloquial manner, as it were discussing his wealth of individual experiences, which makes his book intensely readable, quite as a romance of a very interesting endeavor. Concurrently, there is thoroughness and completeness in its every detail. The surgeon's library as well as that of the anesthetist will be that much incomplete without a volume of this excellent work upon its shelves. And withal, a closer relationship between surgeon and this integreal member of his team, his anesthetist, can be more generally brought into being, so essential to the best of work. The volume contains 735 pages, a well arranged index, and is fully illustrated. It will be enjoyed and valued by all interested in the theory and practice of anesthesia. —*Frank O. Barrett, M. D.*

FOOD CHARTS: FOODS AS SOURCES OF THE DIETARY ESSENTIALS, prepared by a joint Committee of the Council on Foods and Nutrition of the American Medical Association and of the Food and Nutrition Board of the National Research Council. Paper. Price 10 cents. (Quantity prices on request.) Pp. 20. American Medical Association, Chicago, 1942.

A presentation of some facts about foods as sources of the dietary essentials is provided by the present illustrated essay. There are eight charts showing the contribution that individual foods may make with respect to the needs for protein, calcium, iron, vitamin A, thiamine, riboflavin, nicotinic acid, and ascorbic acid. The values are presented in terms of the daily requirements which are supplied by typical servings of each food. The requirements selected are the Recommended Daily Allowances of the Food and Nutrition Board of the National Research Council. There is a descriptive paragraph or two about each of the charts. In addition the booklet reproduces the table of Recommended Dietary Allowances and also provides the values of Minimum Dietary Requirements developed by the Food and Drug Administration for purposes of labeling special dietary foods.

WAR MEDICINE. A symposium. Winfield Scott Pugh, M. D., Editor; Commander (M.C.) U.S.N. Retired; formerly Surgeon, City Hospital, New York City; Associate Editor, Edward Podolsky, M.D.: Technical Editor, Dagobert D. Runes Ph.D. 565 pages. Illus. Price, $7.50, cloth. New York: Philosophical Library, Inc., 15 E., 40thSt., 1942.

Much of this book seems to be written for the last World War. Laudable in conception of its aims, the result falls short of the mark. This is essentially a compilation of various articles published in the medical periodicals, and lacks unity and cohesion. Individually, many of the papers are sound, but as a whole, they just do not lend

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CONTINUOUS CAUDAL ANESTHESIA IN OBSTETRICS

A new method for continuous or fractional caudal anesthesia has been developed by Edwards and Hingson (Am. J. Surg., 57:459 (September, 1942). It appears to be remarkably effective and yet retains the complete cooperation of the patient. There has been uniform absence of delerium, narcosis, cyanosis, nausea, vomiting, and anoxemia, and no interference with uterine contractions. Every infant in the authors' series breathed spontaneously except one stillborn known to have been dead several days before delivery.

The technic consists in the injection of an initial dose of 30 cc. of 1½ per cent solution of "Metycaine" (Gamma-(2-methyl-piperidino)-propyl Benzoate Hydrochloride, Lilly) followed at thirty or forty minute intervals with 20 cc. of the ½ per cent solution. In every case there has been complete freedom of pain and discomfort of active labor within five minutes following the initial dose. Episiotomy and outlet forceps, and repair of the episiotomy has been without pain. The average duration of anesthesia has ranged from four and three-quarters to thirteen hours.

One patient described was having eclamptic convulsions when admitted, with blood pressure 220/110. After the initial dose of "Mytecaine" was given, the pressure declined to 140/90 and the clinical picture improved remarkably. The anesthetic was continued throughout the day without the blood pressure exceeding 150. She delivered a healthy baby spontaneously thirteen hours after the initial dose.

AGAR AND THE WAR

The war has cut off importations of agar-agar, which normally come from Japan. The War Production Board has frozen all stocks of agar in order to protect the requirements for bacteriologic culture medium use of the Army, Navy and civilian hospitals and laboratories.

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VITAMIN FILMS IN COLOR

During the past year the three 16-mm. silent motion pictures in color, deseribing certain vitamin deficiency diseases, which were made available by Eli Lilly and Company, Indianapolis, for showing before medieal groups under sponsorship of a physician, have been in continuous demand. One film deals with deficiency of thiamine chloride (beriberi), another with nicotinic acid deficieney (pellagra), and the third with ariboflavinosis. To meet increasingly frequent demands for the films, additional new prints have been placed in circulation and are now ready for loan. The major part of all films concerns the clinical picture presented by the patient with reference to treatment by diet and specific medication. They do not contain advertising of any description, nor is the name of Eli Lilly and Company mentioned.

The films were made at the Nutrition Clinic of the University of Cincinnati at the Hillman Hospital, Birmingham, Alabama, where studies were initiated in 1935, under the joint auspices of the Department of Internal Medicine of the University of Cincinnati and the University Hospitals of Cleveland. Subsequently, these investigations became a co-operative project between the Departments of Medicine of the University of Cincinnati and the University of Alabama, and the Department of Preventive Medicine and Public Health of the University of Texas.

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Lessons from Pearl Harbor

Destruction of barracks at Wheeler Field, T. H., December 7, 1941. Photo by U. S. Army Signal Corps.

Out of the chaos and confusion—the burns, lacerated wounds and compound fractures—that was Pearl Harbor on that first Sunday of December, 1941—have come many lessons. Not the least among them is the value of the sulfonamides—used topically for the management of the potentially infected traumata.

Field conditions were ideal for the production of Clostridial infections—yet the incidence of gas gangrene was remarkably low and resulted in no deaths. Hospital facilities and surgical skill were hard-pressed and surgical operations were delayed from hours to days. Due in no small measure to the use of the sulfonamides, postoperative mortality was only 3.8 per cent, and most of these fatalities were from shock and hemorrhage.

Topical use of sulfonamides is assuming increasing importance not alone in military practice but in industry and civil life. These compounds should be regarded as an important adjunct to surgery, regardless of whether the surgeon is dealing with grossly contaminated wounds or maintaining asepsis in his operative field. Further studies must, of course, be made to determine the method of application best suited for each type of wound.

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